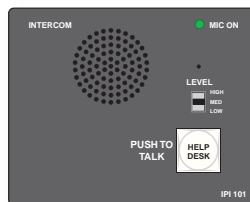
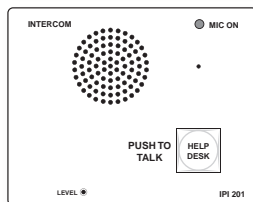
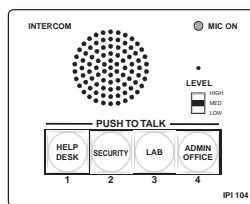


User's Manual



IPI 100 Series
IPI 200 Series

MediaLink™ IP Intercom™ Interfaces

Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conservé les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présents dans la documentation utilisateur.

Éviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avvertimento

Alimentazione • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquerait de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder die Batteriesäugers unmittelbar dahingestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder anderer Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Lithium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desconectar todos los cables de alimentación en el panel trasero del equipo, o desconectar el módulo de alimentación (si fuera independiente), o desconectar el cable del receptáculo de la pared.

Protección del cable de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario debe acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Deschar las baterías usadas siguiendo las instrucciones del fabricante.

安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

声明

所使用电源为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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Quick Start Guide — IPI 101, IPI 104

WARNING *Installation and service must be performed by authorized personnel only. These products must be used with UL approved, grounded electrical boxes.*

To install an Extron IP Intercom® System, follow the steps below:

Step 1

Turn all of the equipment off and **disconnect the power cords**.

Step 2

Select the installation location and install an electrical wall box for each IPI unit and MLC 226 IP in the system. See “Sample Applications” on page 2-8 for ideas on designing an intercom system.

Step 3

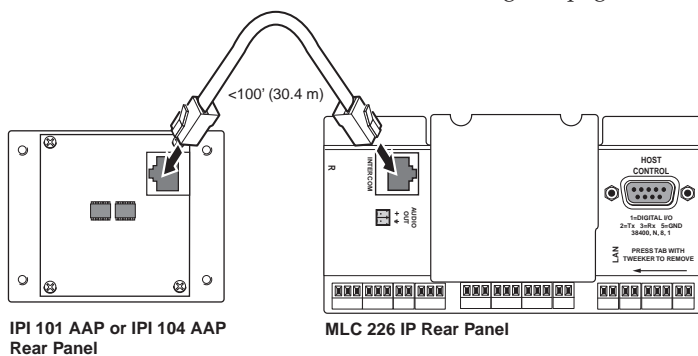
Install button labels in each of the IPI’s buttons. See page 2-2 for instructions.

Step 4

Mount each IPI into an AAP wallplate or device faceplate, as described on page 2-4.

Step 5

Connect each IPI to an MLC 226 IP via the RJ-45 intercom ports, using a standard CAT 5, CAT 5e, or CAT 6 straight through network cable. See “IPI Rear Panel Features and Cabling” on page 2-6.



Step 6

Cable each MLC 226 IP to other devices: connect the MLC’s LAN port to the local network via a standard network cable with RJ-45 connector, and, if desired, cable the rear panel Audio connector to speakers for local audio output. Cable other devices (control modules, SCP, IR Emitters) to the MLC as needed.

Quick Start Guide — IPI 101, IPI 104, cont'd

Step 7

Install each MLC 226 IP and IPI into the wallboxes you installed in step 2 above.

Step 8

Connect the console PC(s) to the network.

Step 9

Connect the PC(s) and MLC(s) to power sources and turn on the PC(s).

Step 10

Configure the MLC 226 IP. Refer to the *MLC 226 IP User's Manual* and the Global Configurator help file for instructions.

Step 11

Install the Extron IP Intercom HelpDesk™ software on a PC. See page 4-2 for software installation instructions.

Step 12

Use the IP Intercom HelpDesk software and Configuration Utility to configure all IPI units that are part of the system. See "Setup procedure" on page 4-20 of this manual for instructions on configuring the IPIs.

Quick Start Guide — IPI 201, IPI 204

WARNING *Installation and service must be performed by authorized personnel only. These products must be used with UL approved, grounded electrical boxes.*

To install an Extron IP Intercom® System, follow the steps below:

Step 1

Turn all of the equipment off and **disconnect the power cords**.

Step 2

Select the installation location and install an electrical wall box for each IPI 201 or IPI 204 unit in the system. See “Sample Applications” on page 2-8 for ideas on designing an intercom system.

Step 3

Install button labels in each of the IPI’s buttons. See page 2-2 for instructions.

Step 4

Mount each IPI into an AAP wallplate, mounting bracket for 2-gang wallplates or device faceplate, as described on page 2-4.

Step 5

Cable each IPI to other devices: connect the IPI’s LAN port to the local network via a standard network cable with RJ-45 connector, and, if desired, cable the rear panel Audio connector (see page 2-8) to speakers for local audio output.

Step 6

Install each IPI into the wallboxes you installed in step 2 above.

Step 7

Connect the console PC(s) to the network.

Step 8

Connect the PC(s) and IPI(s) to power sources and turn on the PC(s).

Step 10

Install the Extron IP Intercom HelpDesk software on a PC. See page 4-2 for software installation instructions.

Step 11

Use the IP Intercom HelpDesk software and Configuration Utility to configure all IPI units that are part of the system. See “Setup procedure” on page 4-20 for instructions on configuring the IPIs.

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IPI 100 Series, IPI 200 Series

1

Chapter One

Introduction

About this Manual

About the MediaLink™ IP Intercom® Modules

Features

System Requirements

Introduction

About this Manual

This manual describes how to configure and operate the following Extron MediaLink™ IP Intercom® Modules:

- IPI 101 AAP
- IPI 104 AAP
- IPI 201 Series
- IPI 204 Series

NOTE *The IPI 201 and IPI 204 series include AAP and 2-gang version intercoms.*

Terms used in this manual

- The terms “IPI” and “intercom” are used interchangeably in this manual to refer to all models.
- The term “console” refers to a PC that is running the IP Intercom HelpDesk™ software and is connected to one or more IPI Intercom® Systems (MLC 226 IP + IPI 104/101 AAP or stand-alone IPI 201/204 AAP) via a local area network.
- “MLC” refers to an MLC 226 IP MediaLink Controller.
- “WAV” refers to a Waveform audio format file, which has a filename extension of “.wav”.

Additional reference material

The following documents are referred to in this manual. They are available at www.extron.com.

- *MLC 226 IP User's Manual*
- *IP Intercom brochure*
- *IP Intercom® Network Impact Statement*
- *IP Intercom® Best Practices*
- *Global Configurator Help File* (automatically downloaded and installed along with the Global Configurator software)

About the IP Intercom Modules

The Extron MediaLink IPI 104 AAP and IPI 204 are four-button IP intercom modules and the IPI 101 AAP and IPI 201 are one-button IP intercom modules for use with Extron's two-way IP Intercom System. The IP Intercom System facilitates room-to-help desk or room-to-room communications within a building, a group of buildings, or even greater distances as long as the intercoms are part of the same network. It provides enhanced support using a standard local area or wide area IP network. For an IP Intercom System, each room requires an IPI 201 or IPI 204 intercom, or an MLC 226 IP MediaLink Controller connected to an IPI 104 AAP or IPI 101 AAP.

NOTE *The IPI 201 and IPI 204 are stand-alone units that do not require a connection to a MediaLink controller.*

MediaLink IP Intercom HelpDesk software is installed on a central office or help desk PC to configure and manage IP Intercom System operations.

Connections between the IPI 101 AAP and IPI 104 AAP intercoms with MLC 226 IP and the network are via existing network drops using standard CAT 5, CAT 5e, or CAT 6 cables.

The Windows®-based MediaLink IP Intercom HelpDesk software makes it easy to set up, manage, and monitor the IP Intercom System. The software also provides the ability for

- faster call response by any available help desk in the system
- enhanced staff utilization by consolidation of monitoring operations
- secure administrator configuration and operator log-in
- making announcements to all intercoms simultaneously

With the paging feature, the help desk operator can page a single room or group of rooms simultaneously. A line level output is available on the back on each MediaLink controller and stand-alone IPI model to mix into a local sound system in each room.

The IP Intercom enables real-time audio monitoring by the help desk for any room where an IPI is installed. Using the IP Intercom HelpDesk software, intercom calls and pages can be logged and date- and time-stamped on the help desk computer. Event logs can be accessed and archived for record keeping and tracking purposes.

In addition to the status monitoring capabilities built into the MLC 226 IP, the IP Intercom makes it possible to monitor audio for each room. For example, if a projector is disconnected from the MLC 226 IP serial port, the GlobalViewer software can be configured to automatically notify a help desk operator or security personnel via e-mail. For immediate notification, e-mails can be sent to multiple addresses including cell phones and wireless PDAs. Help desk operators or other authorized personnel can then use the IP Intercom's audio monitoring capability to listen to the activity in this room, helping them determine if security personnel should be dispatched to investigate.

NOTE *In some states it is illegal to listen in on rooms. To satisfy legal and privacy requirements, the intercom can play a recurring tone during room monitoring. This tone can be turned on or off in the HelpDesk Preferences.*

Introduction, cont'd

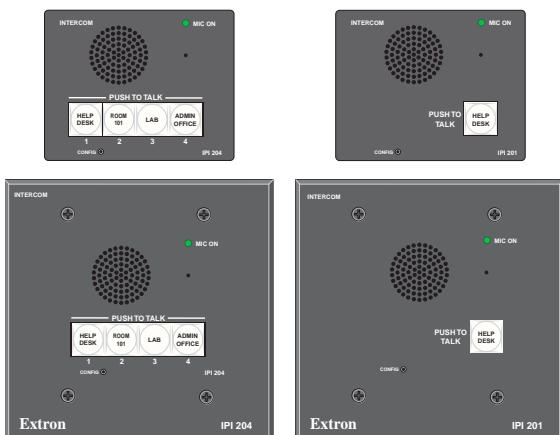
Features

- Two-way, half-duplex voice communications over an IP network
- Compatibility with IP Intercom-enabled MLC 226 IP MediaLink Controllers (IPI 101 AAP and IPI 104 AAP)
- Backlit, configurable Push To Talk buttons
- Integrated speaker and microphone
- Three-position switch to adjust speaker volume levels (IPI 101 AAP and IPI 104 AAP only)
- LED indicator to show when the room is being monitored
- Four space and 2-gang Architectural Adapter Plate (AAP) opening mounting
- Connection via existing network cable drops (one drop per MLC-IPI pair, IPI 101 AAPs and IPI 104 AAPs, only)

System Requirements

The IP Intercom HelpDesk software is available at no charge via the Extron Web site (<http://www.extron.com>) or the CD that comes with your IPI. To install and run IP HelpDesk, you need a PC with the following things installed:

- Windows 2000 or Windows XP Professional
- Pentium 4, 2 GHz or faster microprocessor
- 500 MB RAM, recommended (256 MB minimum)
- 50 MB or more available hard disk space
- Windows-supported sound card, microphone, and speakers
- Microsoft Direct X version 9.0c or later
- Microsoft .NET framework, version 2.0 or later
- network card and a network connection





IPI 100 Series, IPI 200 Series

2

Chapter Two

Installation

UL Requirements

Installing or Replacing Button Labels

Mounting the IPI 101 or IPI 104 into an AAP Wall Plate
or Device Faceplate

Mounting the IPI 201 or IPI 204 into an AAP Wall Plate
or Device Faceplate

IPI Rear Panel Features and Cabling

MLC Audio Connection

Sample Applications

Installation

WARNING

Installation and service must be performed by authorized personnel only. This product should be used with a UL approved electrical box. See “UL Requirements”, below.

NOTE

The MLC 226 IP to which the IPI intercom is connected must have been shipped after November 16, 2005 and also have firmware version 1.05 or later to support the IPI. To set up the IPI you must use the IPI Intercom HelpDesk software.

UL Requirements

1. This unit is not to be connected to a centralized DC power source or used beyond its rated voltage range.
2. The IPI 100 AAPs or IPI 200 AAPs must be installed in a 2-gang UL listed junction box.

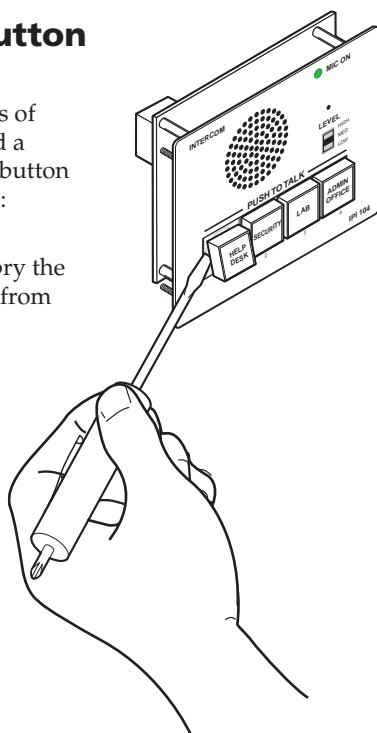
The UL approved electrical wall box (junction box) is not included with the IPI; the installer is responsible for obtaining and installing the box.

3. The unit must be installed in accordance with the National Electrical Code and with local electrical codes.

Installing or Replacing Button Labels

The button assembly consists of a clear lens cap, the label and a white diffuser. To remove a button assembly and replace a label:

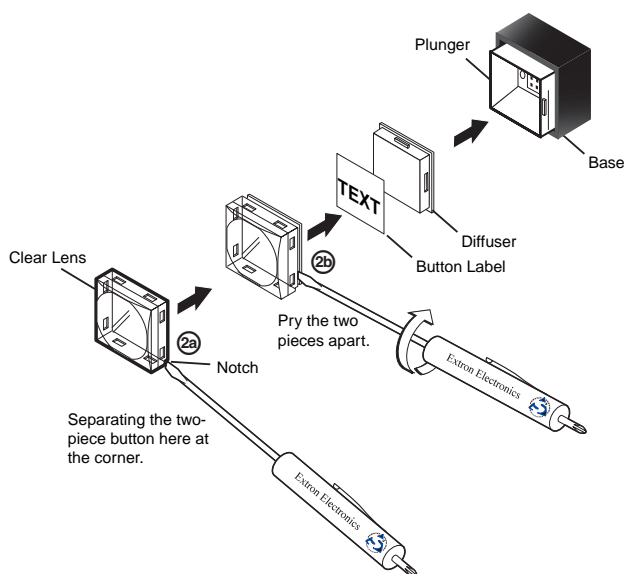
1. Use a small flat-blade screwdriver to gently pry the button assembly away from its plunger/base.



2. Locate the small corner notch on the lens cap and slide the screwdriver between the lens cap and the diffuser, as shown in 2a.

Using a rotating motion of the screwdriver (see 2b), carefully pry the two pieces apart.

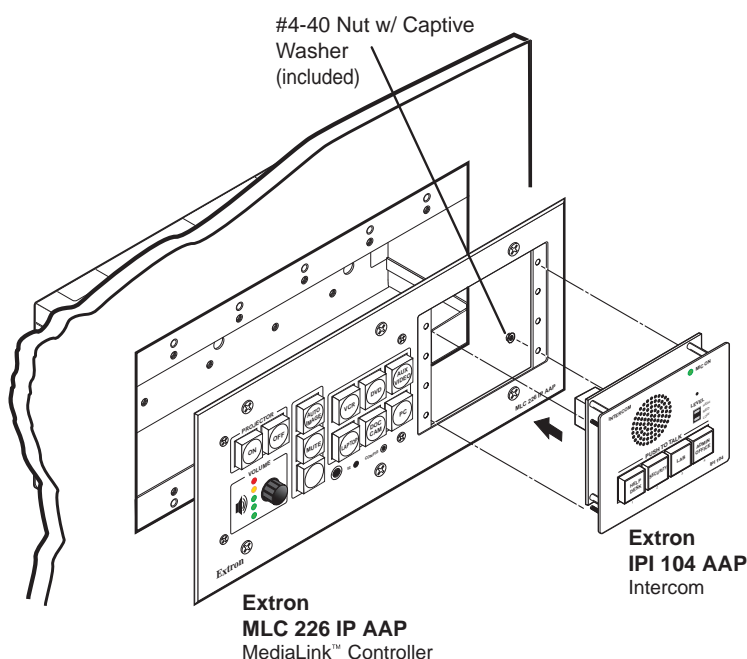
3. Replace the label with the new button label.
4. Press the lens cap and diffuser together and reinstall the button assembly into its plunger/base.
5. Repeat steps 1 through 4 for each button you plan to re-label.



Mounting the IPI 101 or IPI 104 into an AAP Wall Plate or Device Faceplate

The IPI intercom and any other adapter plates must be attached to a device faceplate or AAP wall plate and cabled before the device or wall plate is installed in a wall or furniture. The screws needed for installing the IPI are built into its front panel.

1. Before cables are attached, insert the IPI's screws through the holes in the device's faceplate or AAP mounting frame. Secure the intercom module to the faceplate/wall plate with the provided captive washers and #4-40 nuts, as shown below:

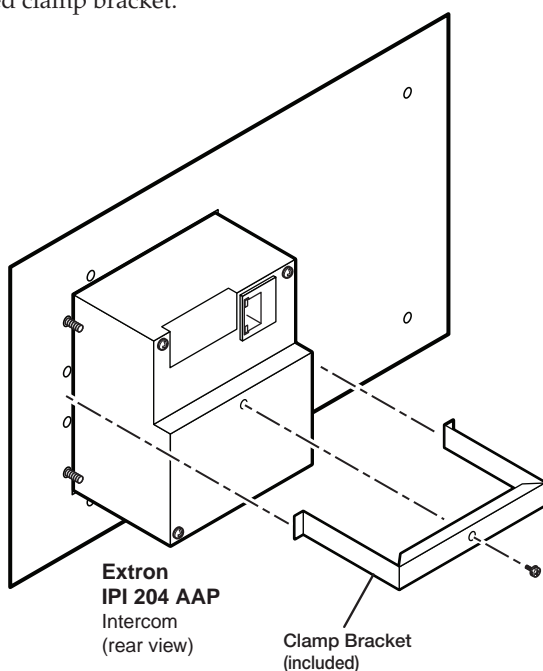


2. Connect each IPI to an MLC via the RJ-45 intercom ports on both devices using a standard CAT 5, CAT 5e, or CAT 6 straight through network cable. See "IPI Rear Panel Features and Cabling" on page 2-6.
3. Mount the AAP mounting frame or other device to the wall, furniture, or rack panel. Follow any special mounting instructions that came with that device.

Mounting the IPI 201 or IPI 204 into an AAP Wall Plate or Device Faceplate

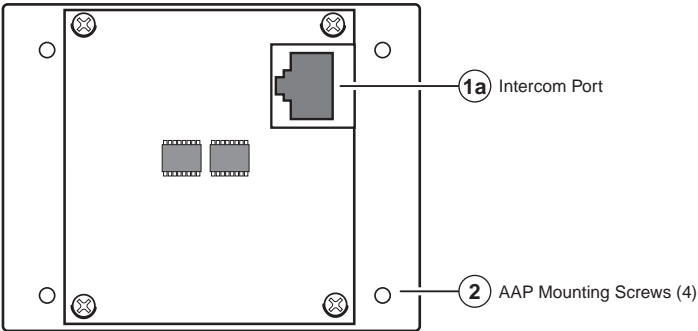
The IPI 201 and IPI 204 intercoms must be attached to a device faceplate or AAP wall plate and cabled before the device or wall plate is installed in a wall or furniture. Unlike the IPI 100 Series intercoms, the IPI 200 AAP Series intercoms are secured by attaching a clamp bracket to the back of the intercom after it has been inserted through the front of the AAP plate.

1. Before cables are attached, insert the IPI through the front of the device's faceplate or AAP mounting frame. Secure the IPI to the faceplate/wall plate by attaching the provided clamp bracket.

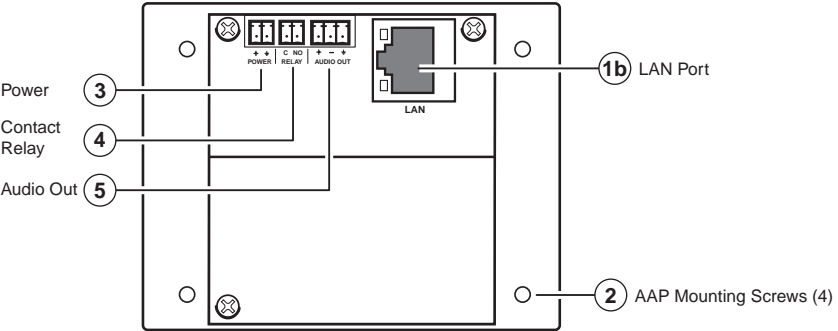


2. Connect cables to the IPI. See "IPI Rear Panel Features and Cabling" on page 2-6.
3. Mount the AAP mounting frame or other device to the wall, furniture, or rack panel. Follow any special mounting instructions that came with that device.

IPI Rear Panel Features and Cabling



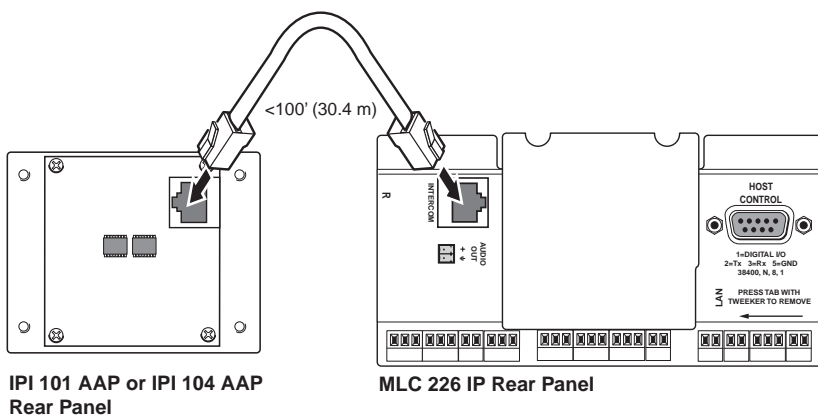
IPI 104 AAP, IPI 101 AAP
Rear Panel



IPI 204 AAP, IPI 201 AAP
Rear Panel

- ①a **Intercom port** (IPI 101 AAP and IPI 104 AAP only) — This port is used for power, control, and voice data communication with the MLC. Plug one end of a standard, straight through, CAT 5, CAT 5e, or CAT 6 cable terminated with RJ-45 connectors into this port. Plug the other end of the cable into the Intercom connector on the MLC 226 IP’s rear panel, as shown in the following figure.

NOTE A 12” (30.5 cm) CAT 6 cable is included with each IPI. If you choose to terminate your own cable, the cable must be no longer than 100’ (30.4 m).
Cables must be terminated to the T586A or T586B standard and both ends of a cable must be wired to the same standard.



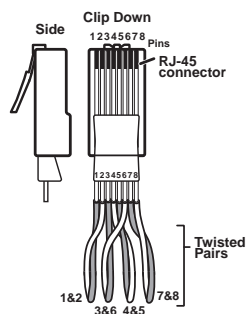
- ①b LAN port (IPI 201 AAP and 204 AAP only) — Plug an RJ-45 jack into the LAN connector to connect to a network. The blinking yellow LED indicates LAN activity. The green LED lights to indicate a good LAN connection.

Patch (straight-through) cable

Pin	Side 1 Wire color	Pin	Side 2 Wire color
1	White-orange	1	White-orange
2	Orange	2	Orange
3	White-green	3	White-green
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Green
7	White-brown	7	White-brown
8	Brown	8	Brown

Crossover cable

Pin	Side 1 Wire color	Pin	Side 2 Wire color
1	White-orange	1	White-green
2	Orange	2	Green
3	White-green	3	White-orange
4	Blue	4	Blue
5	White-blue	5	White-blue
6	Green	6	Orange
7	White-brown	7	White-brown
8	Brown	8	Brown



- ② AAP mounting screws — These four screws are permanently attached to the IPI's faceplate. They are used for mounting the faceplate into another device (such as an MLC 226 IP AAP) or a mounting frame.

NOTE Steps ③ to ⑤ apply to the IPI 201 and IPI 204 models.

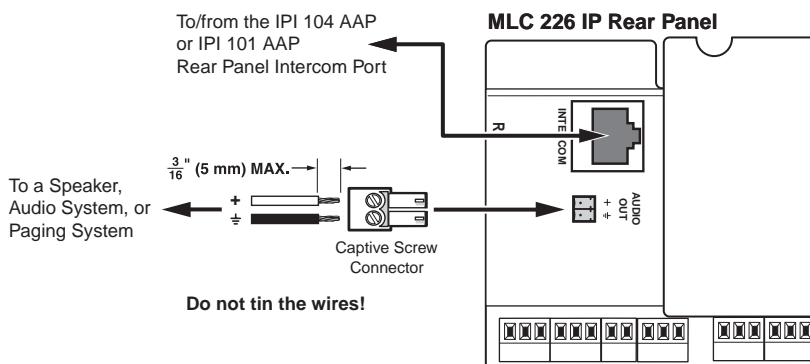
- ③ Power — Connect a cable between the 2-pole, 3.5-mm captive screw connector and a 12 VDC, 2 A power supply (included).
- ④ Contact Relay — The contact relay connector is used to control items such as room lighting, window coverings, and door locks. The contact may be used to control any equipment as long as the contact specifications of 24 VDC at 1 A are not exceeded.

Installation, cont'd

- ⑤ **Audio Out** — A 3-pole, 3.5 mm captive screw connector is used for audio output connection. It provides a -10 dBV unbalanced signal that can be connected to local, powered speakers or to any audio or paging system.

MLC Audio Connection

The MLC 226 IP Series controllers that support IPI intercom panels also have a rear panel, line level audio output port that can be connected to local, powered speakers or to any audio or paging system. See the wiring guide in the illustration below.



NOTE The volume for this audio output can be adjusted via software only.

Sample Applications

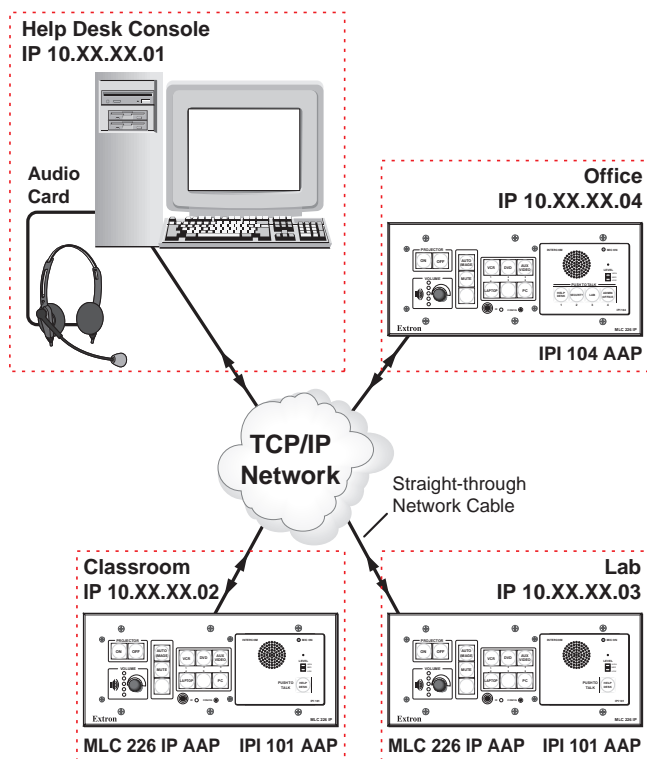
There are several ways to make use of an IP Intercom System. To see what you can do with the IPIs, look at the sample scenarios provided in this section.

Single PC-to-panel mode

For a simple intercom system, connect one or more panels to a PC that serves as the help desk console.

1. Connect one or more IPI 201, IPI 204 units, or MLC 226 IP(s) with one or more IPI 101 AAP and/or IPI 104 AAP units to a network using straight-through cable.
2. Using a PC in the same network, configure the IPI systems, assigning the PC's IP address to one button on each IPI (see chapter 4). The button light changes from red to amber to indicate it is configured and connected to the PC.

3. The intercom user presses and holds the button assigned to the PC to initiate talk mode. The button glows bright amber, and the Mic On LED lights.
4. The user speaks into the intercom. Audio is output through the PC speakers at the help desk console.
5. The intercom user releases the button when done speaking.
6. The console operator clicks the Talk button (in the software) or presses the PC's space bar to respond.



Multiple PC-to-panel mode

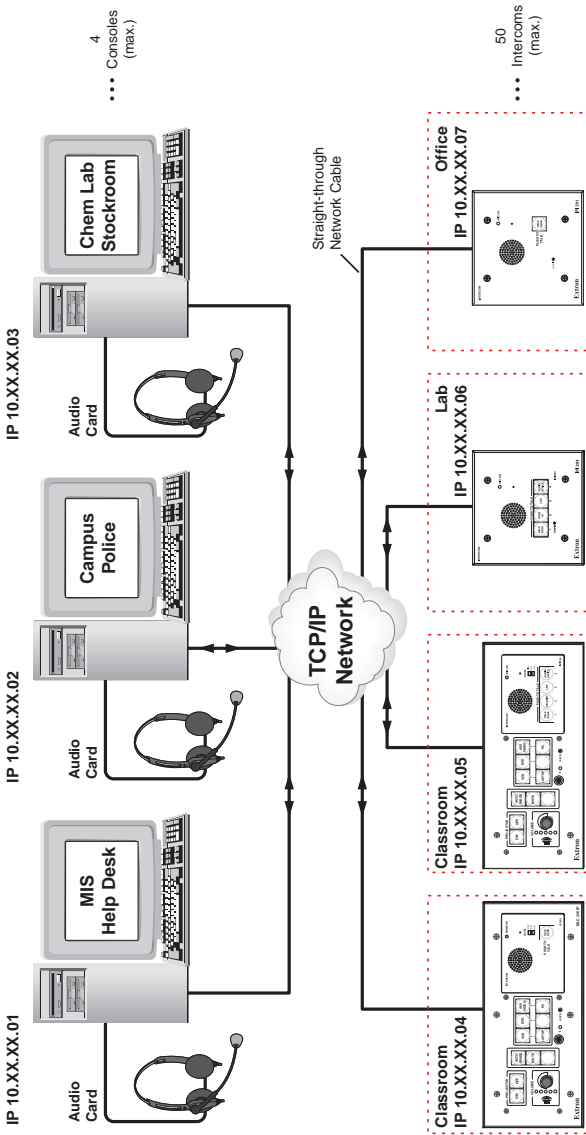
Some facilities may require a system with two or more console PCs. One may be staffed by a computer applications expert, another by security personnel, and a third by resource aides or lab stockroom staff. Each console is configured to connect with several intercoms, and each intercom is configured to contact up to four consoles.

1. Connect up to a maximum of 125 intercoms (per help desk PC) to a network using straight-through cable.

Installation, cont'd

- 2. Connect one or more PCs to the same network and install the IP Intercom HelpDesk Software on each PC.

Read chapter 4 for instructions on how to install and use the software.



-
3. Configure the intercoms and set up the intercom list for each console PC. Each console could be set up to monitor a different group of intercoms, but most likely the lists will overlap.

In this example, an installation in one building of a college campus, each room (classroom, lab, or office) contains an intercom. Configure one button on each intercom to contact the computer help desk, and another button on each intercom to contact the campus security department. However, only the intercoms located in physical sciences classrooms and laboratories have a third button configured to contact the PC console in the lab stockroom. Only the intercoms installed in offices have a button configured to call the registration department's console.
 4. Once the system is configured, each intercom user presses and holds a button to initiate talk mode. The button glows bright amber, and the Monitor LED lights.
 5. The user speaks into the intercom. Audio plays through the speakers or headset at the console the pressed button was configured to call.
 6. The intercom user releases the button when done speaking.
 7. The console operator clicks the Talk button (in the software) or presses the PC's space bar to reply.

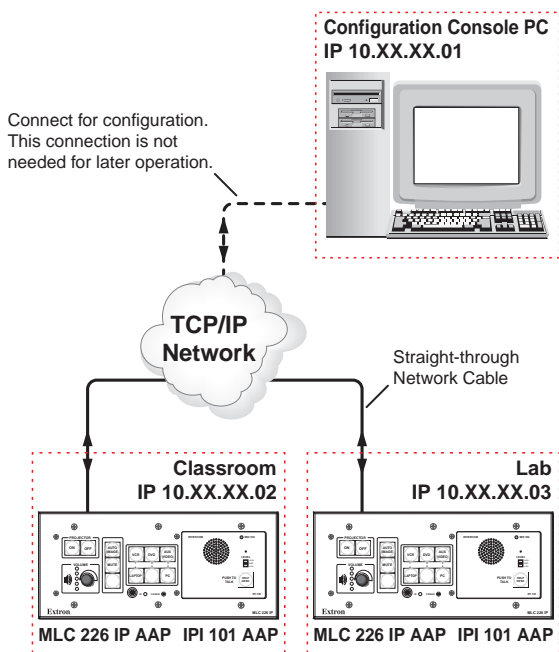
Panel-to-panel mode

You do not need to include a console PC as a permanent part of an IP Intercom System. Here is an example in which panels are configured to "talk" to each other. The software does not need to be running during intercom system operation.

NOTE *Panel to panel mode will only work when both panels are in the same network subnet.*

1. Connect two IPI 101 AAPs and their MLC 226 IPs to a network using straight-through cable.
2. Using a PC connected to the same network (as shown in the following figure), configure the two IPI systems. Read chapter 4 for instructions on how to use the software for configuration.
3. Close the configuration program. The PC can be disconnected from the network or used for other functions.
4. Push the button on one IPI to contact the other IPI. On the calling IPI, the microphone is enabled, the Mic On LED lights, and the button's light changes from low amber to bright/high amber. On the IPI being called, the button's light changes from low amber to bright/high amber.

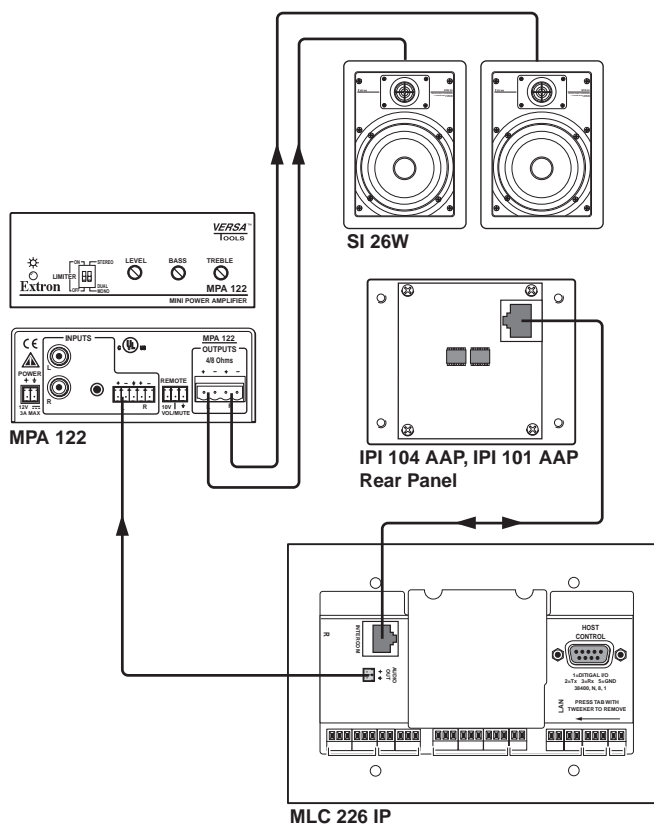
Installation, cont'd



Intercom with amplifier mode

The MLC's Audio Out 2-pole captive screw connector outputs a -10 dBV audio signal that can be routed to an MPA 122 or any external audio amplifier, then to speakers.

1. Cable the system as shown in the following diagram.
2. Power on the equipment.
3. Make fine adjustments to output level using the **Remote Line** slider in the **Advanced Settings** part of the HelpDesk software. The external amplifier (the MPA 122 in this example) must be adjusted properly to avoid any audio signal clipping or audio distortion.
4. If desired, use the software to adjust to minimum levels the MLC's audio output, the IPI's speaker output, or both.





IPI 100 Series, IPI 200 Series

Chapter Three

Operation

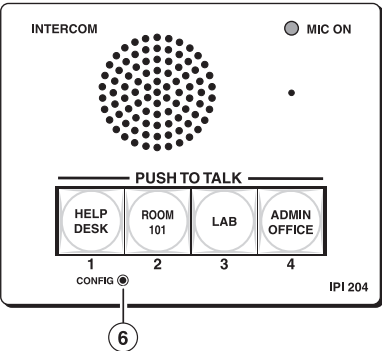
Front Panel Features and Operation

Button Operation

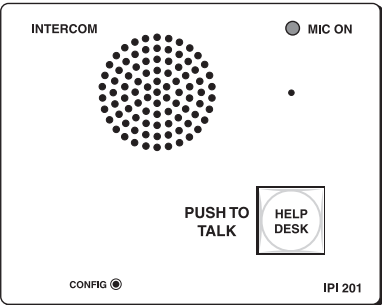
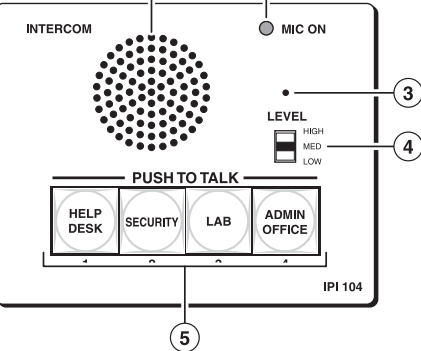
Operation

Front Panel Features and Operation

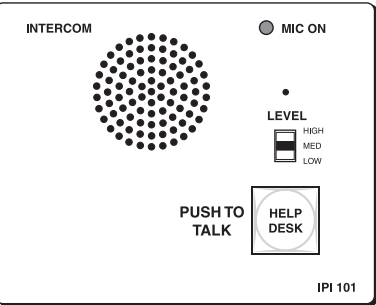
IPI 204 AAP
Front Panel



IPI 104 AAP
Front Panel



IPI 201 AAP
Front Panel



IPI 101 AAP
Front Panel

- ① **Speaker** — This integrated speaker provides mono output at the IPI panel.
- ② **Mic On LED** — This LED lights under two circumstances:
 - When a configured Push to Talk button is pressed.
 - To indicate that someone at the help desk console is listening and that the intercom is in monitoring mode. Monitoring mode permits hands-free operation: the user does not have to press the Push to Talk button to speak into the intercom. It also lets help desk staff monitor what is happening to determine whether to send security personnel to that room.
- ③ **Microphone** — Speak into the microphone, which is behind this opening.
- ④ **Level switch** — This three-position switch lets you change the speaker's loudness level (IPI 100 series, only).



-
- ⑤ **Push to Talk button(s)** — The IPI 101 AAP and IPI 201 units include one of these buttons, and the IPI 104 AAP and IPI 204 units have four.

NOTE *The MLC and IPI intercoms must be configured (via software) to associate each button with the IP address of a specific console PC or intercoms. Once configured, the IPI 101 AAP and IPI 201 can communicate to one location (one IP address). The IPI 104 AAP and IPI 204 can communicate with up to four different locations.*

- ⑥ **Config Port (IPI 200 Series only)** — This 2.5 mm port is used to configure the IPI 201 and IPI 204 and to upload firmware when necessary.

Button Operation

Push to talk operation

Press a Push to Talk button to call the help desk or another console. That enables the microphone, causes the Mic On LED to light, and enables communication to the location associated with that button. When pressed, the button lights bright amber.

- If the console PC being called is busy, the IPI plays a WAV file to tell the caller that the line is busy. A “call received” message appears at the help desk console PC to indicate that the intercom is calling.
- If the console PC being called is not connected to the network, the IPI plays a WAV file stored on its local MLC to notify the intercom user that the connection is not available. Also, the button lights red instead of amber.
- Once a call is successfully connected, press and hold the button when you speak, and release it to allow the other party to speak.

NOTE *You must press and hold an IPI’s button to speak and to call the help desk or another intercom. When you release the button, the intercom’s microphone turns off.*

Indication (lighting)

Button Color	Indication
Amber (dim)	<ul style="list-style-type: none">• The button is in standby.• The device at the IP address associated with that button is turned on and is connected to the network. If that device gets disconnected or if the help desk software is not running on that PC, the button lights red. Once it is reconnected, the button returns to dim amber lighting.
Amber (bright)	<ul style="list-style-type: none">• The IPI is communicating with the location the button is configured to call. This happens during a call, a page, or when receiving an announcement from the console PC.
Red	<ul style="list-style-type: none">• The device (console) associated with the button is disconnected from the network or is turned off.• The software is not running or has been closed.



IPI 100 Series, IPI 200 Series

4

Chapter Four

Configuration and Control

Software System Requirements

Installing the Software

Using the Software: an Overview

Parts of the Main Screen

Main Screen Menus

Configuring the IPI Intercom System

Configuration and Control

The IP Intercom® System can be set up remotely and controlled using the IP Intercom HelpDesk™ software and a host computer (console PC).

To function together, the PC must be network-capable with the proper protocols, and, when using IPI 100 AAP series intercoms, the MLC 226 IP must be connected to a LAN (local area network). See “Software-and Web Page-based Setup and Control” in the *MLC 226 Series User’s Manual* for IP setup instructions. Once the MLC has been configured for network communication, you can install and use the intercom system software.

NOTE *The IPI 201 and IPI 204 are stand-alone units that do not need to be connected to another MediaLink device to function correctly.*

The included Extron IPI Intercom HelpDesk program includes a management and monitoring application (the main screen) and a configuration utility.

Software System Requirements

See page 1-4 for software system requirements.

Installing the Software

To install the IP Intercom® software on the hard drive:

1. Make sure that Microsoft DirectX and Microsoft .NET Framework are installed on your PC. Both of these components can be downloaded for free from the Microsoft Web site, and the installer program on the Extron Software Products CD installs both components if they are not already installed on the PC. DirectX supports the software’s multimedia features and enables your PC to support the intercom system’s audio and voice streaming. The IP Intercom HelpDesk software was developed using the .NET Framework, and it requires the Framework to run.
2. Locate and select the IPI Intercom software from the Extron Product Software CD or the Extron Web site.
3. Follow the on screen instructions to download and install the program. By default the installation creates a directory (C:\Program Files\Extron\IPI) and installs the files there. It also adds an IPI icon to the desktop and adds program shortcuts to the Start menu in a group named “Extron Electronics”. Do not change the directory or the name of the directory where these files are installed.

Using the Software: an Overview

The software allows configuration access only to administrators to prevent other users from making changes to

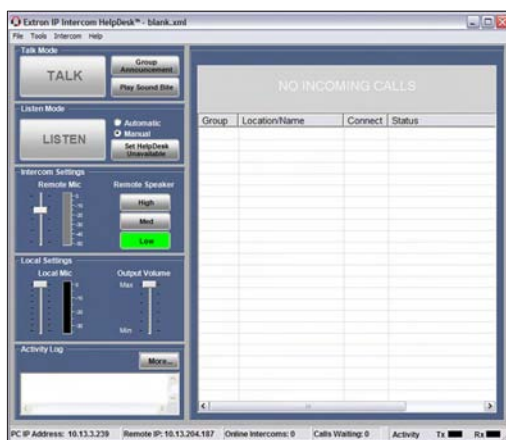
- HelpDesk preferences
- the system configuration including the set of intercoms with which a given help desk console can communicate
- how the buttons on those intercoms are configured
- advanced audio settings for each intercom
- the Listen controls

If the help desk operator does not log on as an administrator or user, help desk operators can still use the main screen to answer and make calls, select and play WAV files, play tones, and talk to one or more intercoms. However, they are prevented from monitoring (listening to) intercoms and from making system setup changes.

NOTE *The default administrator password is “**extron**” (with all lower case letters).
The default user password is “**user**” (with all lower case letters).*

Before configuration, the basic help desk screen looks much like the screen shown on the next page. MLC/intercom IP addresses and buttons have not been configured, so MLC unit names and IP addresses are not listed in the intercom list (near the top of the screen) or in the Activity log (near the bottom of the screen).

Configuration and Control, cont'd



IP Intercom HelpDesk screen before configuration

After configuration, the software screen lists the devices to be managed by the console, indicates their status (connected, disconnected, communicating), and provides several tools. Once units are configured, you can perform the following tasks:

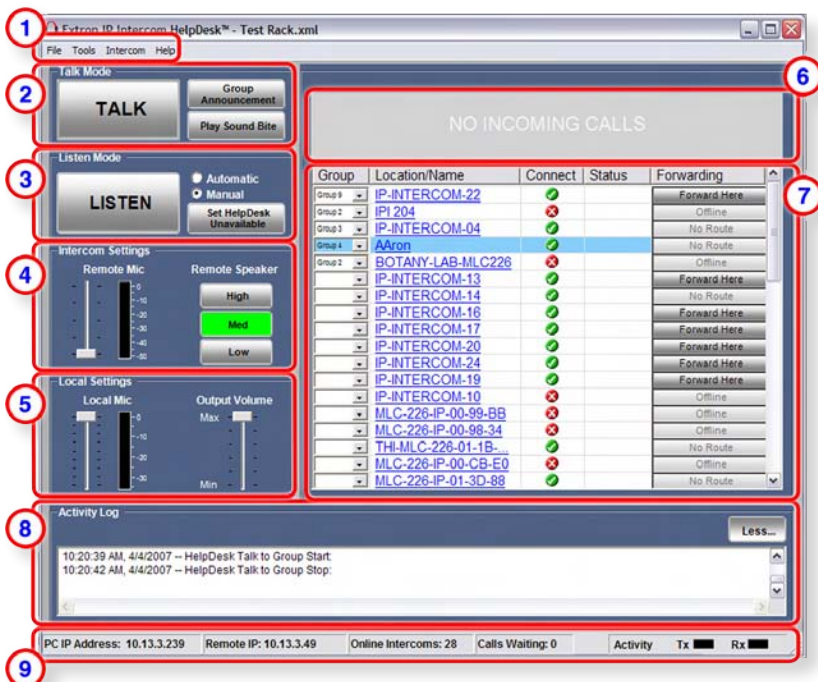
- Initiate calls from any intercom to the console (the PC running the software) or from the console to any intercom or group of intercoms.
- Use the software to view information about intercom connection and call status.
- Hear audio from a specific intercom by selecting that unit's name and clicking the **Listen** button.
- Make an announcement to several intercoms by clicking the **Group Announcement** button. See "Making a group announcement" on page 4-6 for group announcement details.
- Enable the console's microphone and communicate with one or more intercoms by clicking the **Talk** button.



IP Intercom HelpDesk screen after configuration

Parts of the Main Screen

Each area of the IP Intercom HelpDesk software's main screen provides a different set of functions and/or information. Refer to the picture below as a guide to this screen.



Configuration and Control, cont'd

- ① **Menu bar** — See “Main Screen Menus” on page 4-12 for details on the drop-down menus available here.
- ② **Talk Mode area** — The Talk Mode section of the IP Intercom HelpDesk is used to speak or play announcements to other intercoms or help desks.

Speaking to an intercom

- 1. Select an intercom from the Active Intercom List.
- 2. Click the **Talk** button.
- 3. Speak into the headset.

Group	Location/Name	Connect	Status	Forwarding
Group 1	IP-INTERCOM-22	✓		Forward Here
Group 1	IP-INTERCOM-04	✗		Options
Group 2	BOTANY-LAB-MLC226	✓		Play Route
Group 2	IPI 204	✓		Options
Group 2	IP-INTERCOM-13	✗		Forward Here
Group 2	IP-INTERCOM-14	✓		Forward Here

NOTE As an alternative, press the space bar on the computer's keyboard to activate the Talk button. Press the spacebar again to activate the Listen button.

See “Hands-free Operation” on page 4-8 for details about Automatic and Manual modes.

To deactivate Talk mode:

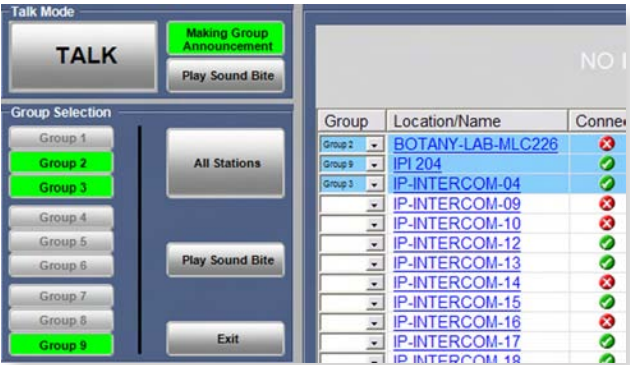
Click the (green when active) **Talking** button.

or

click the **ESC** button on the PC'S keyboard.



Making a group announcement



1. In the Active Intercom List, select an intercom and assign it to a group using the **Group** drop-down menu in the Group column. After an intercom has been assigned to a group the group number shows in the Group selection area.
2. Select one or more group number buttons on the left of the Group Selection area.

NOTE Only groups containing intercoms are available, the rest are inactive (grayed-out).

3. Click the **Play Sound Bite** button.
4. Select an announcement from the Sound Bite Selection window.
5. Click the **Play to Intercoms** button.



or

1. In the Active Intercom List, assign intercoms to a group by selecting a group number from the **Group** drop-down menu in the Group column.
2. Select one or more group number buttons on the left of the Group Selection area.

NOTE Only groups containing intercoms are available, the rest are inactive (grayed-out).

3. Press the **Talk** button.
4. Make an announcement by speaking into the microphone.

To make a group announcement to all intercoms:

1. In the Group Selection area, click the **All Intercoms** buttons.
2. Click the **Play Sound Bite** button.

Configuration and Control, cont'd

- 3. Select an announcement from the Sound Bite Selection window.
 - 4. Click the **Play to Intercom(s)** button.
 - 5. After the announcement is played, repeat the process to send a different message or click the **Exit** button to close the Group Selection window.
- ③ **Listen Mode area** — These controls determine the help desk console's listening modes and options. The console can listen to only one intercom at a time.

Listening to an intercom

To listen to an intercom:

- 1. Select an intercom from the Active Intercom List (⑦ in the screen shown on page 4-5).
- 2. Press the **Listen** button.



To set the help desk into Automatic or Manual mode:

In manual mode, the console operator must click the **Talk** and **Listen** buttons to contact or listen to the intercom.



For hands-free operation for both the help desk and the intercom user, select Automatic. The intercom user presses the intercom's button once to activate the intercom's microphone and put the console into Listen mode. The user speaks into the intercom and does not press the button again until she/he deactivates the microphone. The Listen button activates automatically when the Talk button is de-activated.

NOTE *The console supports room monitoring (listening initiated by the console operator instead of by an intercom user) only if the administrator or user password was entered when the software was opened/started or when the console operator is prompted for the password. Otherwise, an intercom user must push a button on the IPI to activate the intercom's microphone, allowing the console to listen.*

To make the help desk unavailable:

- 1. Click the **Set HelpDesk Unavailable** button.

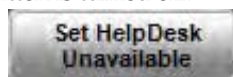
2. Select **Reject Calls** or **Forward Calls**. If the Reject Calls option is set, no calls are accepted. The Forward Calls option sends the call to another help desk.
3. Click **Accept Calls** to return to the Listening mode.

Hands-free operation

For hands-free operation for both the help desk and the intercom user, select **Automatic**. The intercom user presses the intercom's button once to activate the microphone and put the console into Listen mode. The user speaks into the intercom and releases the IPI button when finished speaking. The console operator clicks the **Talk** button to speak to the intercom user.

When **Automatic** is selected, the software's Listen button is automatically enabled when the Talk button is turned off.

In manual mode, the console operator must click the Talk and Listen buttons to contact or listen to the intercom.

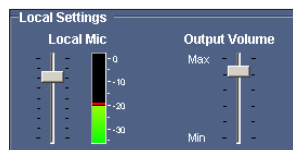


- 4 **Intercom Settings area** — The Intercom Settings control the volume of the remote intercom's microphone and speaker.
 1. To set the sensitivity level of the microphone on the remote intercom, raise or lower the slider control on the left side of the Intercom Settings area.
 2. Click the **High**, **Med** or **Low** buttons to set the volume level of the remote intercom's speaker.



- 5 **Local Settings area** — To adjust the audio output volume at the console PC, click and drag the Local Mic slide control. The highest setting is 0 dB. The lowest is approximately 35 dB lower.

The maximum output of the PC's headset or speakers is determined by the PC's sound card and by the sound card's driver and the operating system's volume controls. This Local Settings level control provides a convenient way for the console operator to lower the volume at the console without leaving the help desk software.



- 6 **Incoming Call area** — Displays the status of calls coming in to the help desk.

Configuration and Control, cont'd

NO INCOMING CALLS is displayed when no calls are coming into the help desk.

INCOMING CALL along with the name and IP address of the calling intercom is displayed when a call is received.

LAST INCOMING CALL displays after a call is answered or forwarded.

⑦ **Active Intercom list** — This area shows the list of intercoms being managed by the console. Each column has a function, described below, and the row for the currently-selected intercom is indicated with a light blue background. The columns are as follows:

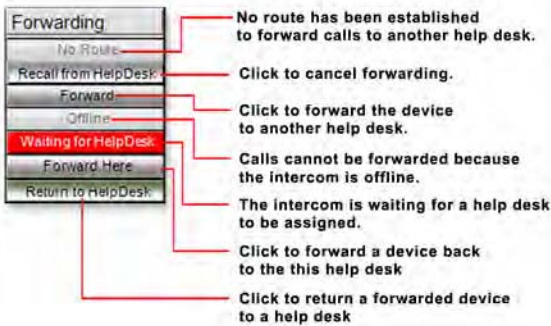
Group — To create a group of IPs to which a WAV file, ring/chime, or announcement can be sent simultaneously; click the **Group** drop-down menu and select a group number from 1 to 9. An intercom can belong to one group only.

Location/Name — View the names of currently managed intercoms. If you use the **Import GC2 File** option during setup, the names come from the Global Configurator (ver. 2 or higher) file. However you can rename the devices as desired by using the IP Intercom Configuration Utility software. (See “Configuring the IP Intercom® System” on page 4-16.)

Connect — View the network connection status of each intercom in this column.

Status — View the current activity of each intercom in this column, which indicates whether the intercom is actively communicating with the console, if its call is waiting to be answered, or if the unit has been disconnected.

Forwarding — shows the intercoms’ call forward status.

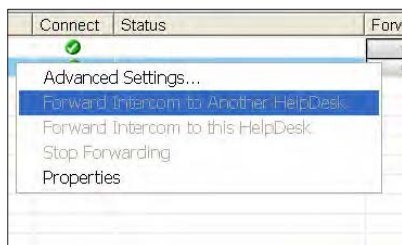


Advanced Settings — available in the active intercom list area and from the Intercom menu.

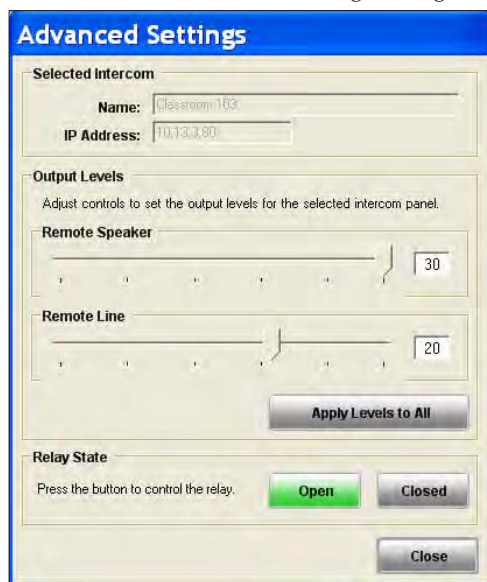
1. Right-click on the intercom's row and select **Advanced Settings**.

or

Select **Advanced Settings...** from the Intercom menu.



If prompted to do so, type in an administrator password and click **OK**. The Advanced Settings dialog box opens:



2. In the Advanced Settings dialog box, move the Remote Speaker and Remote Line controls to the right to increase their output levels. These adjustments take effect immediately.
3. Click the **Apply Levels to All** button to change the Remote Speaker and Remote Line settings for all the active intercoms.

8 Activity Log — This section lists activities between the console and intercoms. This log is cleared and reset every time the software is restarted.

Configuration and Control, cont'd



To save or clear the activity log, select **Activity Log** from the **Tools** menu. Activity logs are saved as text (*.txt) files.

- ⑨ **Status bar** — The status bar displays general information including the console PC's IP address, the number of active intercoms managed by that console, the number of calls waiting, and the time of day.



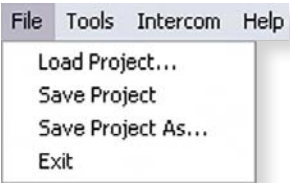
Main Screen Menus

The menus available from the menu bar at the top of the screen provide access to functions and information not found in other parts of the software.

File menu

The File menu enables you to do the following:

- **Load Project...** — Load a previously-saved list of IPI intercom systems to be managed by the help desk console. These lists are saved as XML files.
- **Save Project** — Save the current list of IP Intercom® Systems.
- **Save Project As...** — Save the current list of IP Intercom® System to an XML file with a different name.
- **Exit** — Exit the program.

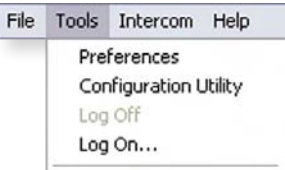


Tools menu

The Tools menu, offers access to two important parts of this software: software preferences and the configuration utility program.

The Tools menu enables you to do the following:

- **Preferences** — Set preferences for a variety of settings that affect both the help desk console and intercoms.
- **Configuration Utility** — Open the configuration program so



you can set up or modify an intercom system.

- **Log off, Log on...**— from help desk administrator or user status.

Preferences are discussed in “Setting preferences” on page 4-13.” See Configuring the IPI Intercom System” on page 4-16 for instructions on how to configure the system after you select **Configuration Utility** from the **Tools** drop-down menu.

Intercom menu

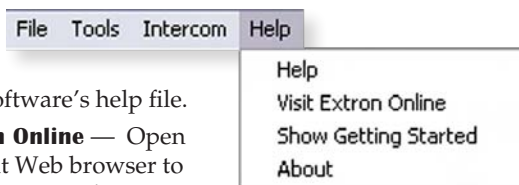
The Intercom drop-down menu contains the following functions:



- **Advanced Audio Settings** — Use this to make adjustments to individual intercoms. Advanced Audio Settings is described in the “Active Intercom List” section of “Parts of the Main Screen”.
- **Forward Intercom to Another HelpDesk** — To forward an intercom to another help desk; from the menu bar, select **Intercom** and then **Forward Intercom to Another HelpDesk**.
- **Forward Intercom to this HelpDesk** — To make an intercom forward its calls to the local help desk, click this selection.
- **Stop Forwarding**

NOTE *These options are also accessed by right-clicking an intercom in the Active Intercom List.*

Help menu

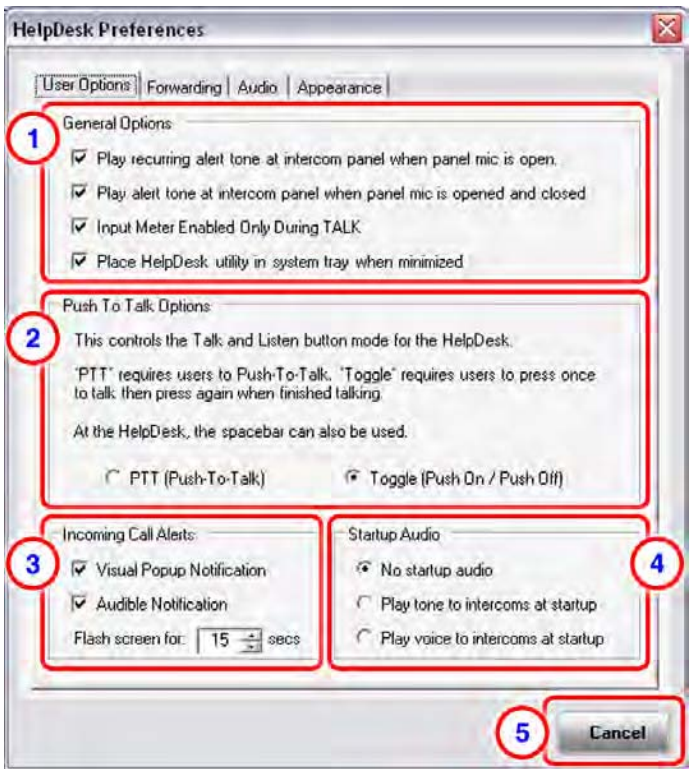


- **Help** — Open the software’s help file.
- **Visit Extron Online** — Open your default Web browser to display the Extron Electronics Web page.
- **Show Getting Started** — Re-opens the Getting Started window that appeared during the IPI Intercom software startup sequence.
- **About** — Displays information about the IP Intercom HelpDesk software.

Setting preferences

1. From the main help desk screen, click on the **Tools** menu and select **Preferences**. A **HelpDesk Preferences** dialog box (shown on the next page) appears.
2. Select the desired settings for the system's console (PC)-intercom operations.
3. Click **OK** to accept the settings and return to the main screen.

The HelpDesk Preferences features are as follows:



① General Options

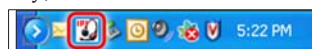
Play recurring alert tone... — If this box is checked, the intercom plays a beep every 10 seconds while the HelpDesk's **Listen** button is active. This feature alerts the instructor/staff that help desk staff is listening in on the room.

Play alert tone at intercom panel... — If this option is selected, the intercom beeps three times quickly when

the HelpDesk's **Listen** button is first activated or when the intercom user presses a Push to Talk button and connects with a help desk. The intercom plays a 2-tone beep when the **Listen** button is deactivated or the Push to Talk button is pressed and released to end a call. If this check box is cleared, the intercom does not sound to indicate an incoming call.

Input meter enabled only during TALK — When this box is checked, the PC (console) microphone audio level (VU) meter is disabled until the help desk operator clicks the **Talk** button and activates the microphone at the PC.

Place HelpDesk utility in system tray when minimized — If this check box is selected, when the help desk software is minimized, it is put into the Windows notification area (formerly known as the system tray), in the taskbar in the lower right corner of the screen.



- ② **Push to Talk (PTT) Options** — These settings affect the HelpDesk Talk button, and only one of these options can be selected at a time.

PTT (Push-To-Talk) — When PTT is selected, the console's **Talk** and **Listen** buttons and microphone can be activated by pressing and holding the space bar or by clicking the **Talk** and **Listen** buttons and holding down the left mouse button.

Toggle (Push On/Push Off) — When **Toggle** is selected, you activate and deactivate the **Talk** and **Listen** buttons and microphone by clicking on the **Talk** and **Listen** buttons and releasing it or by pressing and releasing the keyboard's spacebar.

- ③ **Incoming Call Alert** — These settings determine whether or not the help desk operator sees and/or hears an alert that an intercom is calling. Select one or both types of call announcement.

NOTE *If more than one intercom is calling the help desk, the pop-up window for the first call is the only pop-up window displayed.*

Visual Popup Notification — If you select this option, when an intercom user presses a button, the help desk operator sees a pop-up alert like the one shown here, and the intercom user hears a "please hold" message.



Configuration and Control, cont'd

If you click **BUSY Answer Later**, the intercom plays a message indicating that the support staff is busy.

Audio Notification — If you select **Audio Notification**, when an intercom user presses a button, the help desk operator hears an alert tone.

Flash Screen for: — Use this option to set the duration of the display of the Incoming Call Alerts window between 0 and 300 seconds.

- ④ **Startup Audio** — These controls affect what, if any, sound comes out of intercom speakers when the help desk software is already active and an intercom is powered on or when the help desk software starts and connects to the network.
- **No startup audio** — Turns off audio that plays at the intercoms at startup. This is the default setting.
 - **Play tone...** — Plays a beep or chime at startup.
 - **Play voice...** — Plays a message at startup. The default voice message is “Extron IP Intercom is now activated.”
- ⑤ **Cancel button** — To discard any changes made to help desk preferences, click this **Cancel** button. To save preference changes, click the **OK** button that appears next to the **Cancel** button.

Configuring the IPI Intercom System

The Configuration Utility (also known as the configuration program) is the tool you need to set up an IP Intercom® System. You must first configure the console and intercoms in order for the management software to be useful. Within this program you can assign IP addresses to specific intercom buttons and select a list of intercom systems for the help desk to monitor.

After the equipment has been cabled, installed, and powered on, follow these basic steps to set up an IP Intercom® System:

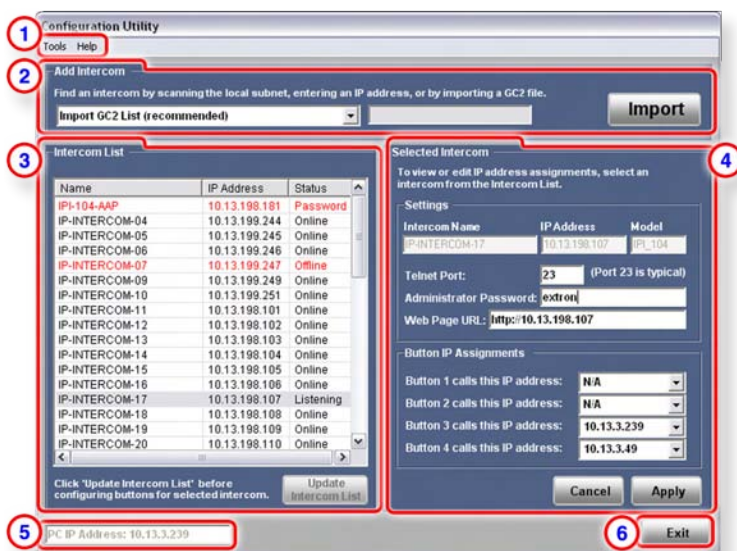
1. Double-click the IPI icon (shown at right) under the Extron group or folder.
2. Click on the **Tools** drop-down menu and select **Configuration Utility**. You need an administrator level password to access this program, so you may be prompted to enter the password. The Configuration Utility opens in a separate window.



NOTE The default administrator password is “**extron**” (with all lower case letters).

3. Add intercoms to the intercom list and click **Update Intercom List**.
4. Configure each intercom and click **Apply**. See the “Configuration” section in this chapter for details.
5. Exit the configuration utility. The main screen is now accessible.
6. Click on the **Tools** drop-down menu and select **Preferences**.
7. Select the desired settings for the system, then click **OK** to accept the settings and return to the main screen. See “Setting preferences” on page 4-13.
8. Click on the **File** menu and select **Save Project** or **Save Project As**, then create a filename for and save the system settings.
9. Manage the intercom system using the main/management screen. See “Parts of the Main Screen” on page 4-5.

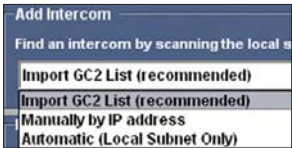
Parts of the Configuration Utility screen



- ① **Configuration Utility menu bar** — See “Configuration Utility menus” on page 4-8 for details on the drop-down menus available here.

Configuration and Control, cont'd

- ② **Add Intercom area** — This area lets you select from three ways to add intercoms to the list of intercoms the help desk console will monitor. See “Setup procedure” in this chapter for details. The button on the right side of this area changes from **Import** to **Add** or **Scan** depending on the method you select for adding intercoms.



- ③ **Intercom List area** — The intercoms listed in this area will be served by the help desk console once you click the **Update Intercom List** button. As you add IP intercoms in the Add Intercom area, their names, IP addresses, and online/offline status appear in this area.

Click on the name of an intercom in this list to select it for setup (see ④). Right-click the unit name and choose **Rename** to rename the unit, or click and press Delete (on the keyboard) to delete it from the list.

- ④ **Selected Intercom area** — In this area you can configure the Telnet port number, administrator password, and the IP address assignments for each button on the intercom that is currently selected in the intercom list (③).
- ⑤ **PC IP Address area** — The IP address of the help desk console PC appears in this area for your reference.
- ⑥ **Exit button** — To return to the main help desk screen, click this button after you have finished creating the intercom list and setting up each intercom button.

Configuration Utility menus

Tools menu

- **Change Password button** — provides a dialog box you can use to change the administrator and user level passwords for the help desk software. The password must be a combination of 4 to 20 alphanumeric characters.

NOTE The default administrator password is “**extron**” (all lower case). The default user password is “**user**” (all lower case).

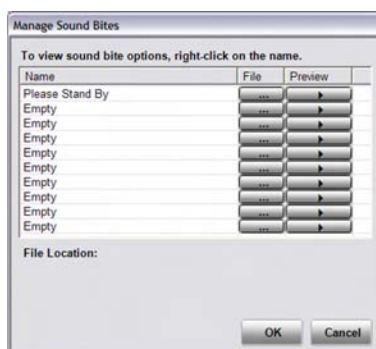
- **Multiple HelpDesk Configuration** — help desks can be added or removed from a list of Cooperating HelpDesks. The list is a queue of help desks that are called in order until the call is answered.

NOTE The host help desk does not appear in the list.

- **Upload the “Station Not Present” Wave File to Intercom** — Load the default file named *nortxeStationNotPresent.wav* to the selected MLC’s or IPI 201 /204 series intercoms’ memory. If the intercom user calls the help desk while the intercom button lights red (the operator is unavailable or the help desk software is closed), this message is played at the intercom. You can replace the factory default recording with one of your choice, but the file you use must be named *nortxeStationNotPresent.wav*, and it must be 8 kHz, 16 bit, mono audio, in PCM format.
- **Reset Selected Intercom** — Reset the currently selected intercom’s settings to the factory default settings. The buttons’ IP address assignments will be cleared.
- **Manage Sound Bites** — Sound bites are loaded in the Manage Sound Bites window.

To load a sound bite into the help desk:

1. Click **File**. The WAV folder opens. It is located in the host computer’s Programs\Extron\ IPI folder which is created when the IP Intercom HelpDesk software is installed. Pre-recorded WAV files are placed in this folder during installation. Custom WAV files can be created and placed in the WAV folder.
2. Select a WAV file and click **Open**.
3. Click **Preview** button to listen to the WAV file.
4. Double-click or right-click the text in the Name column and enter a name for the WAV file.
5. Click **OK**.



Once the WAV file is loaded into the Manage Sound Bites dialog box, it is available when the **Play Sound Bite** button on the main help desk screen is selected.

Help menu

- **Configuration Utility Help** — Opens the configuration software’s help file.
- **Visit Extron Online** — Opens the default Web browser to open and display the Extron Electronics Web page.

Configuration and Control, cont'd

- **About** — Select to see information about the IP Intercom HelpDesk software.

Setup procedure

Follow the steps below to set up the system.

1. Double-click on the IPI icon under the Extron group or folder.
2. Click on the **Tools** drop-down menu and select **Configuration Utility**. You may be prompted to enter an administrator password. The Configuration Utility opens in a separate window.
3. Create a list of intercom-enabled MLC 226 IPs and IPI 201/204 series intercoms. Once selected and configured, these systems will be added to the help desk main window.
 - A. In the Add Intercom area, select how to add IP addresses of IPI-enabled MLC units and IPI 201/204 series intercoms in the network:
 - automatically by importing an MLC 226 IP list of units that was created in Global Configurator 2.x or higher
 - manually by typing the IP address
 - automatically by having the software search for IPI-enabled MLCs and IPI 201/204 Series intercoms that are connected to the network



Import GC2 List — To use this option, click **Import**, locate and select a *.gc2 file, and click **OK**. When you use Global Configurator to set up the MLC 226 IPs that will be part of the intercom system, the software saves the configuration as a *.gc2 file. If you import that file to the IP Intercom HelpDesk software, the IP addresses, unit names, Telnet port numbers, and administrator password (if assigned) are added to the intercom list. The software filters other devices out from the configuration and imports information on MLC 226 IPs and stand-alone IPI 200 Series intercoms.

Manually by IP Address — To use this option, type the IP address of an intercom-equipped MLC 226 IP and IPI 201/204 series intercoms into the blank area to the right of this selection, then click the **Add** button. Repeat that process for each intercom system to add to the Intercom List.

Automatic — To add intercom-enabled MLCs and IPI 201/204 series intercoms to the list automatically, select the automatic option and click the **Scan** button. The software broadcasts a message to the network and adds the responding MLCs and IPI 201/204 series intercoms to the Intercom List. A scanning progress window appears during the scan.

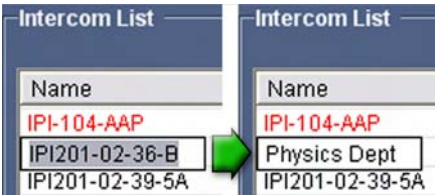
- B. Add IP addresses of intercom-enabled MLCs and IPI 201/204 series intercoms to the list.
 - For manual entry, enter an MLC's or IPI 201/204 series intercom's IP address in the text box, click the **Add** button. Repeat this process for each intercom to be covered by this console.
 - For automatic entry, click the **Scan** button. The console checks the network for IPI-enabled MLC and IPI 201/204 series units that are turned on and connected to the network. As shown in the following example, it adds the name and IP address of every connected unit to the list.



To remove specific units from the list, click on the device's name and press the keyboard's **Delete** key.

Configuration and Control, cont'd

To change the MLC/intercom's name as it appears in the IP Intercom Management software,



right-click on that MLC/intercom's name, select **Rename**, then type in the new name.

You must click the **Update Intercom List** button for this change to take effect in the software. This action does not affect the name stored in the MLC/intercom's flash memory.

4. Add the list of configured intercoms to the main help desk page: click the **Update Intercom List** button in the Intercom List area of the configuration screen, or click the **Apply** button on the right.
5. Assign IP addresses to the buttons of each intercom in the list.
 - A. Select an MLC or IPI 201/204 Series intercom from the list created in step 3. That unit's name and IP address appear in the Selected Intercom area to the right of the list.

NOTE *If the selected system includes an IPI 101 AAP or IPI 201 AAP, only one button (the top button) is active and configurable. "N/A" appears next to three of the four buttons indicating that model has only one button, not four. Rows for the other buttons are also inactive.*

- B. In the Button IP Assignments area, click on the arrow ▼ to the right of *Button 1 calls this IP Address*, and select the IP address of the MLC-IPI system, IPI 201/204 Series intercom or the help desk you want that button to call when it is pressed. If the button will not be used, select **N/A** instead. For an example of the IP address drop-down list, see the sample screen on the next page.
 - C. Repeat steps 5A and 5B for each MLC-IPI pair and IPI 201/204 series intercoms in the list. Creating Audio Files Using Microsoft Sound Recorder




Extron provides a set of basic Waveform (.wav, WAV) audio files for IP Intercom® System announcements, but you can also create additional, customized sound files for each installation. There are many ways to create those files. You can use the Microsoft Sound Recorder program (included with

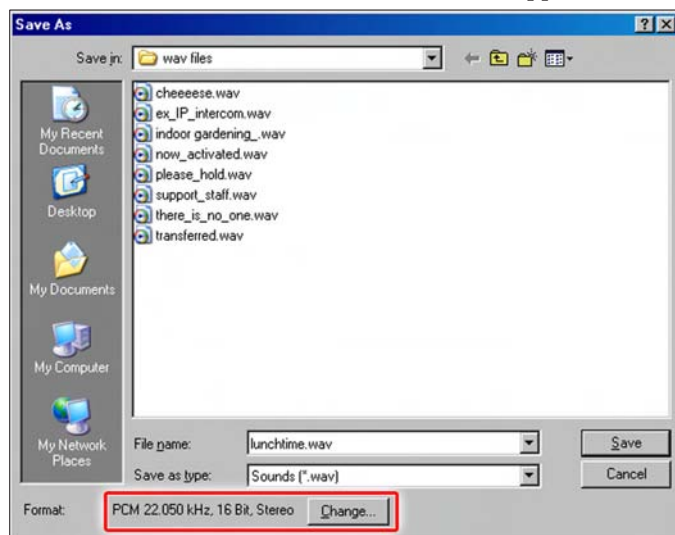
the Microsoft Windows operating system) to make your own WAV files. You need a Windows-based PC with a compatible microphone or other audio input device installed. Follow the procedure below.

Recording an original message

1. Click the **Start** button.
2. In the **Start** menu, select **All Programs > Accessories > Entertainment > Sound Recorder**.

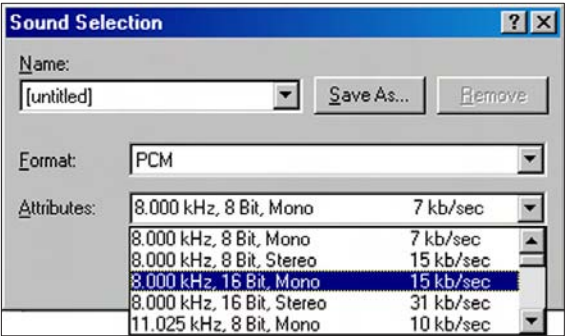


3. From the Sound Recorder's **File** menu, select **New**.
4. To begin recording, click the **Record** button and speak into the microphone .
5. To stop recording, click the **Stop** button .
6. To listen to what you just recorded, click the **Play** button .
7. Click **File > Save As**. The Save As window appears.



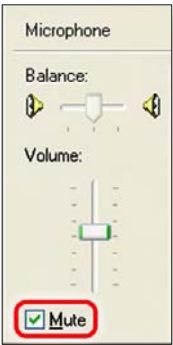
Configuration and Control, cont'd

- 8. Type in a name for the new file in the file name area, and select the WAV file type.
- 9. Click the **Change** button. The Sound Selection window appears. Recorded sounds are saved as waveform (.wav) files. The Windows Sound Recorder default format is PCM 22.050 kHz, 16-bit, stereo. The IPI Intercom System requires different settings.
- 10. In the Sound Selection dialog box, click on **Attributes** and select the audio format of **PCM, 8.0 kHz, 16 bit, mono**, as shown below.



- 11. Click **OK**. The Save As window reappears.
- 12. Click **Save**.

NOTE *If you use PC speakers and a microphone, you might need to use the Windows playback Volume Control to mute the microphone output so the speakers will not output audio unless the **Talk** button is activated.*



Changing the audio format of existing files

If the file format was set incorrectly when you created the file, or if you want to use an existing WAV file that is not formatted as an 8.0 kHz, 16 bit, mono, PCM file, follow this procedure to change the format.

- 1. From the Sound Recorder's **File** menu, select **Open**.
- 2. Locate and select the file you want to convert and click **Open**.



3. From the Sound Recorder's **File** menu, select **Properties**. The Properties dialog box appears (as shown above), displaying the duration, file size, and audio format of the selected file.
4. Click the **Convert Now** button. The Sound Selection window appears.
5. In the Sound Selection dialog box, click on **Attributes** and select the audio format of **8.0 kHz, 16 bit, mono**, as shown in step 10 on the previous page.
6. Click the **OK** button to approve that audio format. The Save As window reappears.
7. Click the **Save** button to save the file.



5

Chapter Five

IPI 201 and IPI 204 Series SIS™ Programming and Control

Host-to-IPI Communication

IPI-initiated Messages

Commands and Responses

IPI 201/204 SIS™ Programming and Control

The Extron MediaLink IP Intercom modules can be remotely set up and controlled via a host computer or other device (such as a control system) attached to the LAN port, or the front panel Config port.

NOTE *Refer to the MLC 226 IP Series User's Manual for IPI 101/104 series SIS command and control information.*

The IPI can be set up and controlled by using Extron's Simple Instruction Set (SIS) commands, accessed via RS-232 or Ethernet LAN connection.

IPI RS-232 protocol:

- 38400 baud
- 8 data bits
- 1 stop bit
- no parity
- no flow control


NOTE *The configuration port requires 38400 baud communication. This is a higher speed than many other Extron products use. If using HyperTerminal or a similar application, make sure the PC or control system connected to these ports is set for 38400 baud.*

LAN port defaults:

- **IP address:** 192.168.254.254
- **gateway's IP address:** 0.0.0.0
- **subnet mask:** 255.255.0.0
- **DHCP:** off

NOTE *The IP Intercom (IPI) must be configured before use.*

Host-to-IPI Communications

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the IPI determines that a command is valid, it executes the command and sends a response to the host device. All responses from the IPI to the host end with a carriage return and a line feed (CR/LF = ) , which signals the end of the response character string. A string is one or more characters.

IPI-initiated Messages

If you are communicating with the IPI via RS-232 or via a verbose Telnet connection when a local event such as a front panel selection or adjustment takes place, the IPI responds by sending a message to the host. No response is required from the host. The IPI-initiated messages are listed here (underlined).

(c)Copyright 2007, Extron Electronics, IPI 201 V1.00, 60-809-00

←

Mon Day, DD Mon YYYY HH:MM:SS

(c)Copyright 2007, Extron Electronics, IPI 204, V1.00, 60-810-00

←

Mon Day, DD Mon YYYY HH:MM:SS

Vx.xx is the firmware version number.

The IPI sends the boot and copyright messages under the following circumstances:

- If the IPI is off and an RS-232 connection is already set up (the PC is cabled to the IPI 204 series and a serial terminal emulation program such as HyperTerminal is open), the connected unit sends these messages via RS-232 when it is first powered on.
- If the IPI is on, it sends the boot and copyright messages when you first open a Telnet connection to the IPI. You can see the day of the week, date, and time if the IPI is connected via Telnet, but not via RS-232. If you are using a Telnet connection, the copyright message, date, and time are followed by a password prompt.

Additional messages may be sent by the IPI in response to front panel selections and volume adjustments and when scripts are executed during scheduled events.

Password information

The “←Password:” prompt requires a password (administrator level or user level) followed by a carriage return. The prompt is repeated if the correct password is not entered.

If the correct password is entered, the unit responds with “←Login Administrator ←” or “←Login User←”, depending on the password entered. If passwords are the same for both administrator and user, the unit will default to administrator privileges.

Error responses

When the IPI receives a valid SIS command, it executes the command and sends a response to the host device. If the IPI is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host.

The error response codes and their descriptions are as follows:

E12 – Invalid port number

E13 – Invalid value (the number is out of range/too large)

E14 – Not valid for this configuration

- E17 – System timed out
- E22 – Busy
- E24 – Privilege violation
- E26 – Maximum number of connections has been exceeded
- E27 – Invalid event number
- E28 – Bad filename or file not found
- E30 – Hardware failure (followed by colon and descriptor number) (This is an unsolicited response.)
- E31 – Attempt to break port pass-through when not set

Error response references

The following superscripted numbers are used within the command descriptions on the following pages to identify commands that may respond as shown:

- ¹⁴ = Commands that give an E14 (not valid for this configuration) response if the unit's current configuration doesn't support that command.
- ²² = Commands that yield an E22 (busy) response.
- ²⁴ = Commands that give an E24 (privilege violation) response if you are not logged in at the administrator level.
- ²⁷ = Commands that may yield an E27 (invalid event number) response.
- ²⁸ = Commands that may give an E28 (file not found) response.

Commands and Reponses

Using the command/response tables

The IPI 201/204 Series intercom can be controlled via either a Telnet (port 23) or RS-232 connection using ASCII commands. Or it can be controlled via a Web browser (port 80) connection

ASCII to HEX Conversion Table																Esc 1B	CR 0D	LF 0A
Space 20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27	(28)	29
*	2A	+	2B	,	2C	-	2D	.	2E	/	2F							
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37	8	38	9
:	3A	;	3B	<	3C	=	3D	>	3E	?	3F							
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47	H	48	I
J	4A	K	4B	L	4C	M	4D	N	4E	O	4F							
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57	X	58	Y
Z	5A	[5B	\	5C]	5D	^	5E	_	5F							
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67	h	68	i
j	6A	k	6B	l	6C	m	6D	n	6E	o	6F							
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77	x	78	y
z	7A	{	7B		7C	}	7D	~	7E	DEL	7F							

ASCII to Hex conversion table

using URL-encoded commands. The ASCII and URL commands listed in the tables starting on page 5-8 perform the same functions, but they are encoded differently to accommodate the requirements of each port (Telnet or browser).

The ASCII to hexadecimal (HEX) conversion table shown above is for use with the command/response tables.

The command/response tables list valid ASCII (for Telnet or RS-232) command codes, the corresponding URL (uniform resource locator) encoded (for Web browsers) command codes, the IPI's responses to the host, and a description of the command's function or the results of executing the command.

- Upper and lower case characters may be used interchangeably in the command field unless otherwise specified.
- Commands may be sent back-to-back without spaces (for example, 2!65V1Z).
- Numbers can be entered with leading zeroes, as 1, 2, or 3 digits, e.g., 8V = 08V = 008V.
- There are a few differences in how to enter the commands depending on whether you are using Telnet or a Web browser.
 - When using these commands through a Web browser, the URL reference is used to shorten the examples. "URL" refers to the full URL of the intercom and Web page reference including all path information (e.g., <http://192.168.100.10/myform.htm>).
 - To send any of the commands using a Web browser you must prefix them with the full URL followed by ?cmd=.
 - For control via a Web browser, all **non-alphanumeric characters** must be represented as the hexadecimal equivalent, %xx, where xx represents the two-character hex byte. A comma (,), for example, would be represented as %2C. Characters such as %, +, and the space character () must be encoded as hex bytes, or they will be misinterpreted by the IPI. For example, the ASCII command +V must be encoded as %2BV for Web browser use.
 - Some characters differ depending on the method you use to send the commands:

<u>Telnet</u>	<u>Web browser</u>
Escape (hex 1B)	W [must not be hex encoded]
Carriage return (hex 0D)	Pipe character () [must not be hex encoded]

NOTE *With Telnet you can use either an "Escape" (**Esc**) command or a "W" command, and the carriage return or*

the pipe character. With the Web browser, you are required to use a "W" command and the pipe character.

In either method, {Data} = data that will be directed to a specified port and **must** be hex encoded if non-alphanumeric.

NOTE *If you make adjustments (changes to volume, etc.), whether via the front panel or via RS-232 or IP communication, it will take 1 minute 40 seconds (100 seconds) for the data in the IPI 200 series' RAM to be saved to flash memory.*

Symbol definitions

- ↵ = CR/LF (carriage return/line feed) (hex 0D 0A)
- ← = Carriage return (no line feed, hex 0D)
(use the pipe character, |, instead for URL-encoded commands)
- = Space character
- | = Pipe (vertical bar) character
- Esc** = Escape key (hex 1B)
(use **W** instead of **Esc** for Web browsers)
- X2** = Command data section.
NOTE *For Web encoding only: data will be directed to the specified port and must be encoded (URL encoding) if it is non-alphanumeric. Change any non-alphanumeric character (% , + , | , ← , etc.) within the data section into the corresponding hexadecimal equivalent, %xx, where xx represents the two-character hex byte. For example, a space (hex: 20) would be encoded as %20 (hex: 25 32 30) and a plus sign (hex: 2B) would be encoded as %2B or hex 25 32 42.*
- X3** = Greenwich Mean Time (GMT) offset value
(-12.00 to +14.00) represents the time difference in hours and minutes (+/-hh:mm) relative to Greenwich, England. The leading zero is optional. For example, 5:30 = 05:30. Do not use a plus (+) sign if the GMT offset is positive.
- X5** = On/off status
0 = off / disable
1 = on / enable
- X11** = Version (typically listed to two decimal places, e.g., x.xx)
- X12** = IPI 200 series' name. The name is a text string of up to 24 characters drawn from the alphabet (A-Z), digits (0-9), and minus sign/hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character **must** be a letter. The last character **must not** be a minus sign/hyphen.
- X13** = **Local date and time format**
Set format (MM/DD/YY-HH:MM:SS).
Example: 01/18/05-10:54:00.
Read format (day of week, date month year HH:MM:SS). Example:
Tue, 18 Jan 2005 18:19:33.

X14 = IP address (xxx.xxx.xxx.xxx). Leading zeros in each of four fields are optional in setting values, and they are suppressed in returned values.

IPI's default address: 192.168.254.254

Default broadcast address: 255.255.255.255.

X15 = E-mail domain name; for example, *extron.com*

X18 = Hardware (MAC) address (xx-xx-xx-xx-xx-xx) (00-05-A6-xx-xx-xx)

X19 = Subnet mask (xxx.xxx.xxx.xxx). Leading zeros are optional in setting values in each of four fields, and they are suppressed in returned values. Default = 255.255.0.0.

X22 = Verbose/response mode status:

0 = clear/none, default for Telnet connections; responses are not echoed to the host

1 = verbose mode is on, default for RS-232 host control; responses are echoed to the host and displayed to the user

2 = send tagged responses for queries

3 = verbose mode is on and tagged responses are sent for queries

NOTE *If tagged responses are enabled, all read commands return the constant string + data, the same as for setting a value. For example, for **[Esc]** CN ←, the response is **Ipn • X12** ← rather than just the data.*

X33 = Password (minimum length = 4 characters, maximum length = 12 characters, no special characters are allowed)

NOTE *A user password cannot be assigned if no administrator password exists; the E14 error code will be returned. If the administrator password is cleared, then the user password is also removed.*

X34 = Daylight saving time (DST) is a region-specific 1-hour offset that begins in spring and ends in fall.

0 = off/ignore

1 = **USA** on – traditionally starts on the first Sunday of April at 2 am and ends at 2 am on the last Sunday of October. For example, time in California is GMT -8:00 from April to October and GMT -7:00 from November to March. However, in 2007 DST starts on the second Sunday in March and ends the first Sunday in November. DST should be turned off in Hawaii, American Samoa, Guam, Puerto Rico, the Virgin Islands, the eastern time zone portion of the state of Indiana, and the state of Arizona (excluding the Navajo Nation).

2 = **Europe** on – begins on the last Sunday in March, ends on the last Sunday in October. DST should be turned off for Iceland.

X35 = Event number, range = 0 - 99
(valid only while events are running)

X41 = Password to display on screen (response to password query or set).
When the MLC connects to a host device via RS-232, the password (**X33**), itself, is the response. When the connection is via IP, **X41** is 4 asterisks (****) if a password has been assigned, or it is an empty field () if a password hasn't been assigned.

X45 = E-mail event number or mailbox (1 - 64). The response is two digits with a leading zero.

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- X46** = E-mail recipient's address (e.g., *JDoe@extron.com*) for the person to whom messages will be sent. The e-mail address has a 31-character maximum.
- X47** = Name (numeral) of e-mail file to be sent
- X49** = Default name: a combination of the model name and the last 3 pairs of the IPI 200 series' MAC address
- X52** = Connection's security level
11 = user
12 = administrator
- X63** = Pulse time in 20 ms per count. If this parameter is missing or = 0, then pulse length = default = 25 = 500 ms. 1 = 20 ms (minimum pulse time) to 65535 = 1310700 ms (maximum pulse time).
- X69** = IP connection timeout period in seconds. Each step is specified in 10-second intervals (1 - 65000, default = 30 = 300 seconds). If no data is received during the specified period, the Ethernet connection closes. Responses are returned with leading zeros.
- X70** = The number to insert into an email message if a _____.*eml* file has an embedded server-side include "<!--#echo var = "WCR |" -->" (the **Esc**CR← command with no parameters.) The numeral is a 16-bit number to be employed as the user defines. This is an optional parameter. Use 0 as a placeholder if the optional **X47** variable is used but **X70** is not needed. Maximum = 65535.
- X71** = Hardware (MAC) address: 4 most-significant hex nibbles converted into single 16-bit decimal number.
- X72** = Hardware (MAC) address: 8 least significant hex nibbles converted into single 32-bit decimal number.
- NOTE** *This could be as large as 10 digits!).*
- X73** = An e-mail account username of up to 31 characters. Do not use commas. This parameter is optional during setup and is used for SMTP authentication.
- X74** = An e-mail account password (for SMTP authentication) of up to 31 characters. Do not use commas. This parameter is optional during setup.
- X206** = Voltage (in volts)
- X207** = Temperature in degrees Celsius (the response is 3 digits including leading zeros)
- X209** = Front panel lockout (executive mode) status
0 = off/unlocked (default)
1 = on, disable/lock the front panel
- X217** = Firmware's event status polling period from 0 to 255 in 20 ms increments. **X217** is optional: if it is not set, it defaults to 100 (2 seconds) and is not shown in the command's response. If **X217** is set to 0, the firmware does not poll for event status.
- NOTE** *The event number that is polled is set by **X35** in the EN command.*

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Relay functions				
Force relay on	1*1O	1%2A1O	Rly 1*1	Turn relay on.
Force relay off	1*0O	1%2A0O	Rly 1*0↵	Turn relay off.
Toggle relay	1*2O	1%2A2O	Rly 1*[X5]↵	Toggle relay on/off. [X5] = 1 (on) or 0 (off).
Pulse relay	1*3*[X63]O	1%2A3%2A[X63]O	Rly 1*[X5]↵ Rly 1*[X5]↵	Set relay's pulse time ([X63]) in 20 ms increments from 1 (20 ms, minimum) to 65535 (1310700 ms, maximum). Default pulse length is 25 = 500 ms.
NOTE If the verbose mode is enabled, there are two responses from the unit because the relay is pulsed. During a pulse, the relay is toggled to its opposite state and then back to the original state.				
View the relay state	1O	1O		
Front panel security lockout modes (executive modes)				
Off ²⁴	0X	0X	Exe 0↵	
Disable lockout mode ²⁴	1X	1X	Exe 1↵	
View the lockout mode status	X	X	[X209]↵	
Example:	X	X	0↵	Executive mode is off.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Status commands				
View all voltage and temperature status	11S	11S	responses from commands 12S•13S•14S•15S•16S•20S ↵	
View +12 V power supply voltage	12S	12S	+X206 ↵	
View +5 V IR receiver port voltage	13S	13S	+X206 ↵	
View +3.3 V IP Link/FPGA voltage	14S	14S	+X206 ↵	
View +1.5 V FPGA voltage	15S	15S	+X206 ↵	
View internal temperature status	20S	20S	X207 ↵	
Firmware version, part number & information requests				
NOTE In a query response, an asterisk (*) after the version number indicates the version that is currently used. A question mark (?) or ?.?? indicates that the factory default firmware is the only firmware loaded in the IPI. A carat (^) indicates the version of firmware that should be running, but, since a mode 1 reset was performed, the factory default firmware version is loaded and running instead. An exclamation point (!) indicates that the firmware is corrupted.				

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Query firmware version number <i>Example:</i>	Q or 1Q 1Q	Q or 1Q 1Q	X11 ↵ or Ver01* X11 ↵ 1.01 or Ver01*1.01	Show the IP1's firmware version (X11) to two decimal places. This query yields the number of the currently running version of the user-updatable firmware
Query verbose firmware version information	0Q	0Q	[response from 2Q]–[response from 3Q]–[response from 4Q]↵ or Ver00*[response from 2Q]–[response from 3Q]–[response from 4Q]↵	Show the bootstrap, factory- installed, and updated firmware versions. See 2Q, 3Q, and 4Q below.
<i>Example:</i>	0Q	0Q	1.03-1.00(1.18-IP1 201/IP1 204 GMT)-1.01*(1.31-IP1 201/IP1 204 GMT)↵	-Thu, 20 Jan 2005 09:41:47 -Tue, 14 Jun 2005 00:54:58
Query bootstrap firmware version <i>Example:</i>	2Q 2Q	2Q 2Q	X11 ↵ or Ver02* X11 ↵ 1.03↵	The bootstrap firmware is not user-replaceable, but you may need this information during troubleshooting.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Query factory firmware version	3Q	3Q	X11↓(kernel version-model description-date time upload)↓ or Ver03*X11↓(kernel version-model description-date time of upload)↓	Factory-installed firmware is different from the bootstrap firmware, but it is also not user-replaceable. This firmware was installed at the factory; it is the version the controller reverts to after a mode 1 reset (see chpt. 2).
Example:	3Q	3Q	1.00(1.18-IP1 201/IP1 204 GMT)↓	-Thu, 20 Jan 2005 09:41:47 In this example the factory firmware version is 1.00 and the IP Link kernel version is 1.18 for the IP1204, dated 20 January 2005.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Query updated firmware version	4Q	4Q	X11 (kernel version–model description–date time of upload)↵ or Ver04* X11 (kernel version–model description–date time of upload)↵	Use this command to find out which version of the firmware, if any, was uploaded into the controller after it left the factory -Mon, 28 Feb 2005 23:16:55
<i>Example:</i>	4Q	4Q	1.00*(1.64-IPI 201 /IPI 204 GMT)↵	In this example the current firmware version is 1.00, the IPI Link kernel version is 1.64, for the IPI, dated 28 February, 2005.
Query FPGA version	32Q	32Q	X11 ↵	Show the field-programmable gate array (FPGA) firmware version to two decimal places (x.xx).
Request the IPI's part number	N	N	60-809-00↵ or 60-810-00↵ or Pno60-809-00↵ or Pno60-810-00↵	Show the IPI's part #.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Request the model name	1I	1I	IPI 201 ↵ IPI 204 ↵	
Request the model description	2I	2I	One-Button IP Intercom ↵ Four-Button IP Intercom ↵	Stand-alone IPI Intercoms
Request system memory usage	3I	3I	# bytes used out of # of kbytes ↵ or Inf03*# bytes used out of # of kbytes ↵	Show amount of memory used and total available memory for system operations.
Request user memory usage	4I	4I	# bytes used out of # of kbytes ↵ or Inf04*# bytes used out of # of kbytes ↵	Show amount of user memory used and total available user memory.
Query IPI module	32I	32I	IPI201 ↵ IPI204 ↵	201 = IPI 201 AAP or 2-gang 204 = IPI 204 AAP or 2-gang.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
IP setup commands				
Set the unit name ²⁴	[Esc] [X12] CN ←	W [X12] CN	Ipn • [X12] ↵	Change the IP's name to one of your choosing ([X12]), such as "AuditoriumIP1", "Rm316-AVcenter", or "exec-boardroom-ctrl". The name consists of up to 24 alphanumeric characters (and the minus sign). The first character must be a letter, the last character cannot be a minus sign (hyphen). Case does not matter.
Set unit name to factory default ²⁴	[Esc] • CN ←	W%20CN	Ipn • [X49] ↵	[X49] = the name the IP1 was shipped with: IP1 104 -##-##-##, a combination of the model name and the last 3 pairs of hex numbers in the controller's MAC address (e.g., IP1-104-IP-00- 02-3D).
Read the unit name	[Esc] CN ←	WCN	[X12] ↵ or [X49] ↵	[X12] is the IP's current, user-defined unit name. [X49] is the IP's factory default name.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Set date/time ²⁴	[Esc] [X13] CT←	W [X13] CT	Ip← [X13] ↵	[X13] = Local date and time format. The set format is MM/DD/YY-HH:MM:SS. <i>Example: 09/07/06-10:54:00.</i>
Read date/time	[Esc] CT←	WCT	[X13] ↵	[X13] = Local date and time format. The Read format is <i>day of week, DD month year HH:MM:SS</i> . <i>Example: Fri, 08 Sept 2006 18:19:33.</i>
Set GMT offset ²⁴	[Esc] [X3] CZ←	W [X3] CZ	Ipz [X3] ↵	Set the Greenwich Mean Time (GMT) offset value ([X3]) for the IPI's location. GMT offset (-12.00 to +14.00) represents the time difference in hours and minutes (+/-hh:mm) relative to Greenwich, England. The leading zero is optional. For example, 5:30 = 05:30. Do not use a plus (+) sign if the GMT offset is positive.
Read GMT offset	[Esc] CZ←	WCZ	[X3] ↵	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Set daylight saving time ²⁴	[Esc] [X34] CX ←	W [X34] CX	Ipx [X34] ↓	<p>[X34] = Daylight saving time (DST) is a region-specific 1-hour offset that begins in spring and ends in fall. 0 = off/ignore</p> <p>1 = USA on – starts on the first Sunday of April at 2 am and ends on the last Sunday of October. For example, time in California is GMT -8:00 from April to October and GMT -7:00 from November to March. However, in 2007 DST starts on the second Sunday in March and ends the first Sunday in November. DST should be turned off in Hawaii, American Samoa, most equatorial regions, Guam, Puerto Rico, the Virgin Islands, the eastern time zone portion of the state of Indiana, and the state of Arizona (excluding the Navajo Nation).</p> <p>2 = Europe on – begins on the last Sunday in March, ends on the last Sunday in October. DST should be turned off in Iceland.</p> <p>3 = Brazil on – begins on the last Sunday in October, ends on the third Saturday in March. This varies from year to year.</p>
Read daylight saving time	[Esc] CX ←	WCX	[X34] ↓	
Set DHCP on ²⁴	[Esc] 1 DH ←	W1DH	Idh 1 ↓	
Set DHCP off ²⁴	[Esc] 0 DH ←	W0DH	Idh 0 ↓	
NOTE Changing DHCP from on to off also resets the IP address to the factory default (192.168.254.254).				
View DHCP mode	[Esc] DH ←	WDH	[X5] ↓	[X5] = 0 (off) or 1 (on).
Set IP address ²⁴	[Esc] [X14] CI ←	W [X14] CI	Ipt • [X14] ↓	[X14] = IP address (xxx.xxx.xxx.xxx). Leading zeros in each of the four fields are optional in setting values.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Read IP address	[Esc] C ←	W C	[X14] ↓	Leading zeros in each of the four fields are suppressed in returned values.
Read hardware address (MAC)	[Esc] CH ←	W CH	[X18] ↓ or Iph • [X18] ↓	[X18] = hardware (MAC) address (xx-xx-xx-xx-xx-xx).
Set subnet mask ²⁴	[Esc] [X19] CS ←	W [X19] CS	Ips • [X19] ↓	[X19] = subnet mask (xxx.xxx.xxx.xxx). Syntax is the same as for IP addresses. Leading zeros are optional in setting values.
Read subnet mask	[Esc] CS ←	W CS	[X19] ↓	Leading zeros are suppressed.
Set gateway IP address ²⁴	[Esc] [X14] CG ←	W [X14] CG	Ipg • [X14] ↓	[X14] = IP address (xxx.xxx.xxx.xxx). Leading zeros are optional.
Read gateway IP address	[Esc] CG ←	W CG	[X14] ↓	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Set verbose response mode on/off ²⁴	[Esc][X22]CV ←	W[X22]CV	Vrb [X22] ←	<p>Enable or disable the verbose mode via this command. For [X22]:</p> <p>0 = clear /none, default for Telnet connections; responses are not echoed to the host</p> <p>1 = verbose mode is on, default for RS-232 host control; responses are echoed to the host and displayed to the user</p> <p>2 = send tagged responses for queries</p> <p>3 = verbose mode is on and tagged responses are sent for queries.</p>

NOTE If tagged responses are enabled, all read commands return the constant string + data, the same as for setting a value.

For example, for **[Esc]CN** ←, the response is **Ipm•[X12]CV** ← rather than just the data.

Verbose mode is a communication mode in which the device responds with more information than it usually would—more than the device, itself, requires. For example, the controller can send out unsolicited information (such as notice of a volume or input change or a change in some other setting). That is an example of a verbose (wordy) relationship between the controller and a connected device. Verbose mode creates more network traffic than usual, which can slow down network performance.

Verbose mode is usually enabled for troubleshooting and disabled for daily use.

- For a direct RS-232 connection, the controller is set for verbose mode by default.
- When the IPI is connected via Ethernet, verbose mode is disabled (by default) in order to reduce the amount of communication traffic on the network. If you want to use the verbose mode with a controller connected via Ethernet, this mode must be set to "on" each time you reconnect to the controller.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Read verbose mode status	[Esc] CV ←	WCV	[X22] ↵	
Set the broadcast mode ²⁴	[Esc] [X64] [X14] EB ←	W [X64] %2C [X14] EB	Bmd [X64] [X14] ↵	This command details how often and to what subnet work the IPI broadcasts a message. [X64] = Broadcast repetition interval in seconds (0 to 255 [4.25 minutes], default = 0 = off). [X14] = IP address (xxx.xxx.xxx.xxx). Leading zeros in each of four fields are optional in setting values, and they are suppressed in returned values. Default broadcast address: 255.255.255.255.
Set the broadcast mode to the default address ²⁴	[Esc] [X64] EB ←	W [X64] EB	Bmd [X64] 255.255.255.255↵	
Clear the broadcast mode ²⁴	[Esc] 0EB ←	W0EB	Bmd 000,255.255.255↵	This command sets the repeat interval to zero, turning off the broadcast mode.
View the broadcast mode	[Esc] EB ←	WEB	[X64] [X14] ↵	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Set the broadcast port	[Esc] {port#} [X71] , [X72] PB←	W{port#} [X71] , [X72] PB	Bpt {port#} [X18] ←	
View the broadcast port and MAC	[Esc] PB←	WPB	{port#} [X18] ←	
NOTE {port#} = UDP outgoing port, [X71] [X72] = MAC address for UDP unicast transmissions.				
NOTE Changes to the PB command become effective in kernel versions 1.53 or higher.				
Get connections listing	[Esc] CC←	WCC	verbose modes 0/1: {Number of connections}← verbose modes 0/1: Icc {Number of connections}←	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Password and security settings				
Set administrator password ²⁴	[Esc] [X33] CA ←	W [X33] CA	Ipa • [X41] ↵	Set the administrator access password ([X33] , 4 to 12 alphanumeric characters). The password is case sensitive. Special characters (spaces, symbols) are not allowed. [X41] = Password to display on screen (response to password query). When the IPI connects to a host device via RS-232, the password ([X33]), itself, is the response. When the connection is via IP, [X41] is 4 asterisks (****) if a password has been assigned, or it is an empty field () if a password hasn't been assigned.

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Clear administrator password ²⁴	[Esc] • CA ←	W%20CA ←	Ipa • ←	Clear/remove all passwords (administrator and user).
NOTE A user password cannot be assigned if an administrator password does not exist. Also, if the administrator password is cleared, the user password is also cleared.				
Read administrator password	[Esc] CA ←	WCA	[X41] ←	
Set user password ^{14, 24}	[Esc] [X33] CU ←	W [X33] CU	Ipu • [X41] ←	Set the user password ([X33] is 4 to 12 alphanumeric characters). The password is case sensitive. Special characters (spaces, symbols) are not allowed. [X41] = Password to display on screen.
NOTE A user password cannot be assigned if an administrator password does not exist. Also, if the administrator password is cleared, the user password is also cleared.				
Clear user password ²⁴	[Esc] • CU ←	W%20CU	Ipu • ←	This clears the user password only.
Read user password	[Esc] CU ←	WCU	[X41] ←	
Read connection's security level	[Esc] CK ←	WCK	[X52] ← or Pvl [X52] ←	For [X52] 11 = user 12 = administrator

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Remapping port designations				
For security reasons the network administrator may wish to assign new / different port numbers to the controller's Telnet, Web browser, and direct access ports or to disable one or more ports. Typically Telnet uses port 23, Web access is via port 80 (HTTP), and direct access is via port 2001.				
CAUTION	<i>Do not set two or more ports to the same port number. Setting two ports to the same number could cause networking conflicts and will also result in an E13 (invalid parameter) error.</i>			
NOTE	<i>If you remap a port, you must set the port number to 1024 or higher, unless you reset the port to the default number or disable the port by setting it to 0.</i>			
Set the Telnet port map ²⁴	[Esc] {port#}MT ←	W{port#}MT	Pmt {port#} ↓	Select a number for the port that will not conflict with any other ports.
Reset the Telnet port map ²⁴	[Esc] 23MT ←	W23MT	Pmt 00023 ↓	This resets the Telnet port to port 23.
Disable the Telnet port map ²⁴	[Esc] 0MT ←	W0MT	Pmt 00000 ↓	Setting the port number to 0 disables the port.
Read the Telnet port map	[Esc] MT ←	WMT	{port#} ↓	
Set the Web port map ²⁴	[Esc] {port#}MH ←	W{port#}MH	Pmh {port#} ↓	
Reset the Web port map ²⁴	[Esc] 80MH ←	W80MH	Pmh 00080 ↓	This resets the Web port to port 80.
Disable the Web port ²⁴	[Esc] 0MH ←	W0MH	Pmh 00000 ↓	
Read the Web port map	[Esc] MH ←	WMH	{port#} ↓	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Set the Direct Access port map ²⁴	[Esc] {port#}MD ←	W{port#}MD	Pmd {port#} ←	
Reset the Direct Access port map ²⁴	[Esc] 2001MD ←	W2001MD	Pmd 02001 ←	This resets the direct access port to port 2001.
Disable the Direct Access port ²⁴	[Esc] 0MD ←	W0MD	Pmd 00000 ←	
Read the Direct Access port map	[Esc] MD ←	WMD	{port#} ←	
Directory commands				
Change or create a directory	[Esc] path/directory/ CJ ←	W path %2F directory %2F C J	Dir • path/directory/ ←	The directory's name must be composed of alphanumeric characters and may include the minus sign (hyphen, -) and the colon (:). The first character must be a letter. Case does not matter. No blank or space characters are permitted in the name. Include the <u>full</u> path, not just the name of the directory. Nonalphanumeric characters are not permitted in the Web browser.
NOTE A directory does not fully exist until a file has been copied into that path. Also, the IPI operates differently from PC operating systems: files stored in and directories created in the IPI may have the same names.				

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Example:	<code>[Esc]majordirectory/subdirectory/next-level/CJ←</code>	<code>Wmajordirectory%2Fsubdirectory%2Fnext-level%2FCJ </code>	<code>Dir•majordirectory/subdirectory/next-level/↵</code>	In this case, the path is <i>majordirectory/subdirectory/</i> . The directory that was just created or changed to is called <i>next-level</i> .
Example:	<code>[Esc]custompages/HTMLfiles/CJ←</code>	<code>Wcustompages%2FHTMLfiles%2FCJ </code>	<code>Dir•custompages/HTMLfiles/↵</code>	This example just created a subdirectory for storing the user's custom-made HTML files. The directory that was just created is called <i>HTMLfiles</i> .
Example:	<code>[Esc]oak/CJ←</code>	<code>W oak%2FCJ </code>	<code>Dir•oak↵</code>	
Change back to the root directory	<code>[Esc]/CJ←</code>	<code>W%2FCJ </code>	<code>Dir•/↵</code>	
Go up one directory level	<code>[Esc]..CJ←</code>	<code>W%2E%2ECJ </code>	<code>Dir•path/directory/↵</code>	
View the current directory	<code>[Esc]CJ</code>	<code>WCJ </code>	<code>path/directory/↵</code>	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
NOTE	The current directory is determined on a per-connection basis. At the beginning of each IP connection/session, the current directory is selected as the root directory.			
NOTE	Directory = A text string drawn from the alphabet (A~Z), digits (0~9), minus sign/hyphen (-), plus sign (+), or colon (:). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character. A directory does not truly exist until a file has been copied into that path. Unlike various PC operating systems, a File and Directory on the Extron product are allowed to have the same name. The current directory is a per-connection setting. It begins at the root for each new IP session.			
Stream Files via Telnet or RS-232				
Load a file to user flash memory	[Esc] + UF filesize, filename←		Upl←	
Retrieve file from user flash memory	[Esc] filename SF←		{responds with 4-bytes of file-size + raw undprocessed data in file}}	
NOTE	If there is insufficient space on a box to store the sent file, response will be "Fld←" instead of "Upl←" to denote failure.			
NOTE	Updating firmware can be done by loading an .S19 file with this command. If the box determines that the .S19 file is not intended for this product, the "Upl←" response is followed by an "Fwm←" response (Firmware mismatch).			

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Stream Files via Port 80				
Load file to user flash memory		Use a POST on port 80 followed by the delimited data to be written to the flash file memory.		
Retrieve file from user flash memory		Send a page GET on port 80 followed by: WSF (e.g. http: //192.168.254.254/ mypage.html?cmd=WSF	{responds with raw unprocessed data in file}	
File handling commands				
Erase the user- supplied Web page and files ^{24,28}	[Esc] filename EF ←	W filename EF	Del • filename ↵	
Erase the current directory and its files ^{24,28}	[Esc] / EF ←	W %2F EF	Ddl ↵	
Erase the current directory and its subdirectories ^{24,28}	[Esc] // EF ←	W %2F %2F EF	Ddl ↵	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
List files from the current directory	[Esc] DF ←	WDS		Retrieve a list of files stored in the controller. Each line of the response lists a different filename and its corresponding file size. The last line of the response indicates how much available file space there is.
	[Esc] DF ←	WDF	[filename 1] • [day, date time of upload] GMT • [file size 1 in bytes] ↓ [filename 2] • [day, date time of upload] GMT • [file size 2 in bytes] ↓ [filename 3] • [day, date time of upload] GMT • [file size 3 in bytes] ↓ ... [filename <i>n</i>] • [day, date time of upload] GMT • [file size <i>n</i> in bytes] ↓ [space remaining (to 7-digits)] • Bytes Left ↓ ↓	

When working with the IPI's embedded Web pages, the response visible in HTML source code follows this structure:

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
<div>Example (via Telnet or HyperTerminal):</div>	<div>␣DF␣</div>	WDF␣	<pre>var file=new Array(); file[1]="filename 1",[day, date time1 of upload] GMT,[file size 1 in bytes]";␣ file[2]="filename 2",[day, date time2 of upload] GMT,[file size 2 in bytes]";␣ file[3]="filename 3",[day, date time3 of upload] GMT,[file size 3 in bytes]";␣ ... file[n]="[filename n],[day, date time<i>n</i> of upload] GMT,[file size <i>n</i> in bytes]";␣ file[n+1]="[space remaining (to 7-digits)],Bytes Left;␣</pre>	
			<pre>4.evt Tue, 01 Mar 2005 02:03:07 GMT 42233␣ 1.eml Tue, 01 Mar 2005 02:03:34 GMT 200␣ 2.eml Tue, 01 Mar 2005 02:03:34 GMT 300␣ 2.eir Tue, 01 Mar 2005 02:03:34 GMT 1683␣ 6.evt Tue, 01 Mar 2005 02:03:36 GMT 17956␣ 4.eir Tue, 01 Mar 2005 02:03:47 GMT 6849␣ IPImain.sc Tue, 01 Mar 2005 02:03:52 GMT 8515␣ 0.evt Tue, 01 Mar 2005 02:03:56 GMT 34413␣ 99.eml Tue, 01 Mar 2005 02:04:19 GMT 178␣ buttons.xml Tue, 01 Mar 2005 02:04:19 GMT 17214␣ IPI.cfg Wed, 16 Mar 2005 21:34:45 GMT 7188␣ 6568448 Bytes Left␣␣</pre>	

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
List files from the current directory and its subdirectories	[Esc] LF ←	WLF	(See responses to [Esc] DF ←, above.)	The response is the same except that the path/directory prece filenames for files within the subdirectories.
Event Control				
Start events	[Esc] 1AE ←	W1AE	Ego ←	
Stop events	[Esc] 0AE ←	W0AE	Est ←	
Query number of events running	[Esc] AE ←	WAE	##### ← or Enm ##### ←	The response is the quantity of currently running events, and it includes leading zeros. For example, if two events are running, the response is 00002 ←.
Reset (zap)/Erase Commands				
Erase all files from flash memory	[Esc] ZFFF ←	WZFFF	Zpf ←	
Reset all devices settings to factory presets	[Esc] ZXXX ←	WZXXX	Zpx ←	
NOTE Excludes IP settings such as IP address, subnet mask, gateway IP address and IP Security-level table. User files in flash memory will not be deleted.				

Command	ASCII (Telnet) (host to intercom)	URL Encoded (Web) (host to intercom)	Response (intercom to host)	Additional description
Reset all device settings and delete files	[Esc] ZY←	WZY	Zpy←	
NOTE This is an absolute system reset but excludes IP settings such as IP address, subnet mask, gateway IP address, unit name, DHCP setting and port mapping (Telnet/Web/direct access) in order to preserve communication with the device. This reset is recommended after a firmware update.				
NOTE The ZY command appears in kernel versions 1.45 or higher.				
Absolute system reset	[Esc] ZQQQ←	WZQQQ	Zpq←	
NOTE (Mode 5 reset) Resets alls device settings, including IP settings, to factory default. Also rerases flash memory. Firmware version remains the same.				



IPI 100 Series, IPI 200 Series

Appendix A

Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Accessories

Specifications — IPI 101, IPI 104 Series

Audio — IPI 101, IPI 104, and MLC 226 IP

Speaker	1.4" (35.6 mm), 1-way, indoor
Frequency response	
Line level output (MLC)...	20 Hz to 3.3 kHz, ±1 dB
Speaker output (IPI).....	300 Hz to 3.3 kHz, -10 dB
Nominal sensitivity /IPI speaker output level	
	80 dB SPL, 300 mW, 3' (1 m)
Processing	
Audio format	PCM, µ-law companded
Sampling rate.....	8 kHz
Sample size.....	16 bit, µ-law companded to 8 bit
Audio latency.....	<100 ms

Audio input — IPI

Number/signal type.....	1 mono, via integrated electret microphone
Microphone gain	-30 dB to 0 dB, adjustable in 2 dB steps

NOTE $0\text{ dBu} = 0.775\text{ Vrms}$, $0\text{ dBV} = 1\text{ Vrms}$, $0\text{ dBV} \approx 2\text{ dBu}$

Audio output

Number/signal type.....	2 mono: 1 via MLC 226 IP, 1 via IPI speaker
Line level (MLC).....	-10 dBV (316 mVrms), unbalanced (via 3.5 mm captive screw connector, 2 pole)
Amplified speaker IPI.....	300 mW, continuous, 1% THD

Ethernet control interface

Ethernet control communications port	
	1 RJ-45 female connector
Ethernet data rate/transport bandwidth	
	80 kbps
Communications type	Half duplex
Ethernet protocol.....	TCP/IP (control), UDP (port 3121, audio), Telnet
Program control.....	Extron's control/configuration program for Windows®
	Extron's Simple Instruction Set (SIS™)
	Microsoft® Internet Explorer, Telnet

General

Power	Supplied by MLC 226 IP
Power input requirements	+12 VDC, <100 mA
Distance between MLC 226 IP and IP	100' (30.5 m), maximum
Connection types.....	RJ-45 jacks with CAT 5, CAT 5e, or CAT 6 cable
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Mounting	
Rack mount	Yes, with optional faceplate
Furniture mount.....	Also furniture- and wall-mountable with optional faceplate or in an MLC 226 IP AAP faceplate
Enclosure type	Metal faceplate
Enclosure dimensions	
Board/device	2.7" H x 2.6" W x 0.9" D (6.9 cm H x 6.6 cm W x 2.3 cm D) (Depth excludes buttons and switch. Allow at least 2.1" (5.3 cm) depth in the wall or furniture.)
Product weight	0.2 lbs (0.1 kg)
Shipping weight	1 lb (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory Compliance	
Safety	CE, CUL, UL
Compliances.....	CE, C-tick, FCC Class A, ICES, VCCI
MTBF.....	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at $\pm 10\%$.*

NOTE *Specifications are subject to change without notice.*

Specifications — IPI 201 and IPI 204 Series

Audio

Speaker	1.4" (35.6 mm), 1-way, indoor
Frequency response	
Line level output	20 Hz to 3.3 kHz, ± 1 dB
Speaker output	300 Hz to 3.3 kHz, -10 dB
Nominal sensitivity / IPI speaker output level	
	80 dB SPL, 300 mW, 3' (1 m)
Processing	
Audio format	PCM, μ -law companded
Sampling rate	8 kHz
Sample size	16 bit, μ -law companded to 8 bit
Audio latency	<100 ms

Audio input

Number/signal type	1 mono, via integrated electret microphone
Microphone gain	-30 dB to 0 dB, adjustable in 2 dB steps

NOTE $0\text{ dBu} = 0.775\text{ Vrms}$, $0\text{ dBV} = 1\text{ Vrms}$, $0\text{ dBV} \approx 2\text{ dBu}$

Audio output

Number/signal type	2 mono: 1 via audio output port, 1 via IPI speaker
Line level (MLC)	-10 dBV (316 mVrms), balanced / unbalanced (via 3.5 mm captive screw connector, 2 pole)
Amplified speaker IPI	300 mW, continuous, 1% THD

Ethernet control interface

Ethernet control communications port	
	1 RJ-45 female connector
Ethernet data rate/transport bandwidth	
	80 kbps
Communications type	Half duplex
Ethernet protocol	TCP/IP (control), UDP (port 3121, audio), Telnet
Default settings	Link speed and duplex level: autodetected
	IP address = 192.168.254.254
	Subnet mask = 255.255.0.0
	Default gateway = 0.0.0.0
	DHCP = off

Program control.....	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™) Microsoft® Internet Explorer, Telnet
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Control — relay

Number/type	1 momentary or latching (configurable)
Connector	(1) 3.5 mm captive screw connector, 2 pole, C (common) and NO (normally open) for configurable relay output
Contact rating	24 V, 1 A

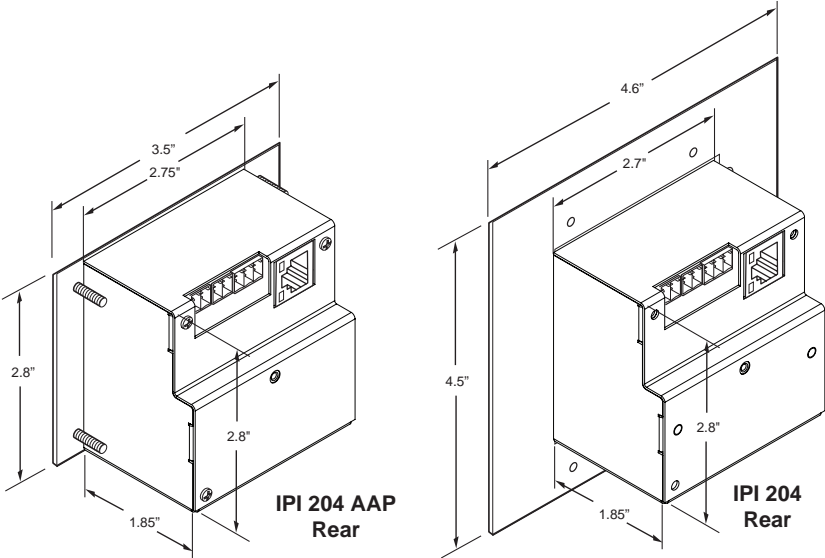
General

External power supply	100 VAC to 240 VAC, 50/60 Hz, external; to 12 VDC, 2A, regulated
Power input requirements	+12 VDC, 0.25 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Mounting	
Rack mount	Yes, with optional faceplate and rack mounting kit
Furniture mount	Also furniture- and wall-mountable with optional faceplate and mounting kits
Enclosure type	Metal faceplate

Specifications, Part Numbers, Accessories, cont'd

Enclosure dimensions

IPI 201, IPI 204 faceplate...	4.5" H x 4.6" W x 0.1" D (11.4 cm H x 11.7 cm W x 0.3 cm D) (fits some 2 gang boxes)
IPI 201 AAP, IPI 204 AAP faceplate	2.8" H x 3.5" W x 0.1" D (7.1 cm H x 8.9 cm W x 0.3 cm D) (four space AAP plate)
Device	2.8" H x 2.7" W x 1.85" D (6.9 cm H x 6.6 cm W x 4.9 cm D) (Depth excludes buttons. Allow at least 2.25" (5.5 cm) depth in the wall/furniture.)



Product weight	0.5 lbs (0.2 kg)
Shipping weight	3 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)

Regulatory Compliance

Safety.....	CE, CUL, UL
Compliances.....	CE, C-tick, FCC Class A, ICES, VCCI
MTBF.....	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at ±10%.

NOTE Specifications are subject to change without notice.

Included Parts (IPI 101 AAP and IPI 104 AAP)

These items are included in each order for an IPI intercom module:

Included parts	Replacement part number
IPI 104 AAP (black, white)	70-502-02, -03
IPI 101 AAP (black, white)	70-501-01, -03
RJ-45 interconnection cable (12" CAT 5e)	26-632-01
Button labels	33-1344-01
Tweezer (small screwdriver)	
User's manual	

Accessories

MediaLink Controllers, labels	Part number
MLC 226 IP (black, white, RAL9010 white, or without faceplate)	60-600-02, -03, -05, -00
MLC 226 IP AAP (black, white, RAL9010 white)	60-600-12, -13, -15
MLC 226 IP L (black, white, RAL9010 white)	60-600-32, -33, -35
Button labels (International/multilingual text)	33-956-01
Button cap and diffuser kit (set of 3 button cap assemblies)	70-352-01

Specifications, Part Numbers, Accessories, cont'd

Included Parts (IPI 201 and IPI 204 Series)

These items are included in each order for an IPI intercom module:

Included parts	Replacement part number
IPI 201 AAP (black, white)	60-809-1X
IPI 201 2-gang (black, white)	60-809-0X
IPI 204 AAP (black, white)	60-810-1X
IPI 204 2-gang (black, white)	60-810-0X
12 V, 1 A power supply	70-055-01
Button labels	33-1344-01
User's manual	

Accessories

Amplifiers, cable, miscellany	Part number
9-pin D female to 2.5 mm TRS configuration cable	70-335-01
MPA 122	60-668-01
MPA 181 T	60-747-01
Button labels (International/multilingual text)	33-956-01
Button cap and diffuser kit (set of 3 button cap assemblies)	70-352-01

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,
and Central America:**

Extron USA
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Europe, Africa, and the Middle East:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Asia:

Extron Asia
135 Joo Seng Road #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:

Extron Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

China:

Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:

Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Extron USA - West Headquarters +800.633.9876 <small>Inside USA / Canada Only</small> +1.714.491.1500 +1.714.491.1517 FAX	Extron USA - East +800.633.9876 <small>Inside USA / Canada Only</small> +1.919.863.1794 +1.919.863.1797 FAX	Extron Europe +800.3987.6673 <small>Inside Europe Only</small> +31.33.453.4040 +31.33.453.4050 FAX	Extron Asia +800.7339.8766 <small>Inside Asia Only</small> +65.6383.4400 +65.6383.4664 FAX	Extron Japan +81.3.3511.7655 +81.3.3511.7656 FAX	Extron China +400.883.1568 <small>Inside China Only</small> +86.21.3760.1568 +86.21.3760.1566 FAX	Extron Middle East +971.4.2991800 +971.4.2991880 FAX
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